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Winter/Spring, 1991

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The BMUG Newsletter

Volume VII, Number 1

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3) That you consider posting articles from your newsletter on our BBS or via one of the various BBS services on which we have a connection.

If you have any questions, please e-mail to BMUG, or call 415-549-BMUG.

Thanks, and enjoy the Newsletter!

Next Deadlines

BMUG Memo, Vol. V, No. 1 . . . . . March 15, 1991
BMUG Newsletter, Summer/Fall, 1991 . . . . . May 9, 1991
BMUG Memo, Vol. V, No. 2 . . . . . September 5, 1991
BMUG Newsletter, Winter/Spring, 1992 . . . . . October 24, 1991

Dedication

This edition of the BMUG Newsletter is dedicated to:

Janet Sky
& Family

In recognition of their undaunted perseverance during the past several Macworld Expos and excellent enthusiasm for BMUG.

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Andresen Typographics . . . Gary (Mad Dog) Wieneke
Tim Summers
Peter Stickney

Software or Hardware Review & Evaluation Policy

It has come to our attention that people have been contacting software and hardware manufacturers requesting evaluation copies for review in the BMUG Newsletter. This practice is not a BMUG policy. While we do not wish to deny anyone the opportunity to do a product review, we must request that all evaluation copies be mailed *only* to the main BMUG address. We will distribute the product to the person who will be responsible for the review.

BMUG members: If you would like to review a product for an upcoming BMUG publication, please contact the BMUG office and request a copy. Do not contact the manufacturer directly.

Manufacturers: If you wish us to evaluate/review your product, please send it to the appropriate department:

Technical Evaluations: Steve Costa
Product Reviews: Randy Simon

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Please remember that we publish once every six months (released during the Macworld Expos in San Francisco and Boston) and that our evaluations are based on how well a product performs over a continuous period of time in the hands of an average user. Products received will be reviewed after a reasonable time of usage for evaluation purposes, unlike the major magazines who review products based on features. Please allow at least three to four months for testing of your product. Feedback for Technical Evaluations occurs more quickly, and we will contact you as soon as we are able.

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Bill Woodcock
Ef Wyeth
Stony Yee
David Yost

And anyone else we may have accidently forgotten.

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Input/Output:
A Letter to the Membership

David Morgenstern
Chairperson of the BMUG Board of Directors

Hello BMUGers! It's another year, and another Newsletter. I'm pleased to give you some news, views, and reviews of happenings around BMUG.

Last year at this time we were still digging out of the great Quake of '89. BMUG and many of our Bay Area members played a significant role in the assisting disaster-relief organizations with the recovery effort. Our office hardware was quickly carted away to the East Bay recovery center. Randy Simon, Bernt Wahl, and Raines Cohen were among dozens of BMUGers helping the Red Cross with database entry for homeless relocation, computer networking, and materials donations processing. We all counted our blessings that the damage stayed away from the office, and that we were able to take part in the recovery.

I could write pages about the normal everyday business-as-usual bustle of the BMUG office, the crossroads of the Macintosh world—the thousands of people helped on the BMUG HelpLine, on the BMUG BBS, or just strolling in off the street into the office. I might mention our daily Special Interest Group meetings, weekly Main meetings, monthly meetings in the San Francisco Exploratorium Science Museum, and our annual user show (a.k.a. MacToberFest, TurkeyFest, or Mac'90). I would certainly mention the constant stream of helping that flows from our volunteers and staff, getting the work done, calling, fixing, writing, and teaching. But you already know all that, right? Instead, I'll highlight a few significant BMUG happenings and cultural events.

Mission and Re-Missions

Last Spring the BMUG Board of Directors convened a retreat to rewrite the BMUG mission statement. This involved a close examination of BMUG's activities, culture, history, and personality cults. Believe it, or not, the following took almost a day to write:

BMUG is an educational non-profit consumer-advocacy group, organized to share information and provide critical direction to users and developers in the computer community worldwide. BMUG will provide an enjoyable, caring atmosphere, open to all, for volunteers and staff to serve, help, and grow.

That's pretty terse, but it monuments many of the things we've been saying and doing since our earliest days.

- BMUG is an educational non-profit group. Our effort involves the transmission of general computer knowledge through our publications, seminars, lectures, and meetings. We also provide specific information to solve problems for individuals through the HelpLine, BBS, and our work on other electronic services. We still hold high our motto: *We're in the business of giving away information.*
- BMUG is a consumer-advocacy group. We always ask the hard questions, and express the truth as we see it. We tell it like it is at BMUG, unlike other groups

that are afraid to confront developers. This has often cost us in the short run, but we hope that the truth will be rewarded. Only with the support of our members can we continue to do the right thing.

- BMUG is committed to the future of computing. We believe in the importance of the computer as a critical force for positive change in the world. The way we connect and interact with our computers is of vital concern to everyone, especially to a union of concerned and committed users. BMUG's vision is being carried to other users, developers, and even to governmental bodies.
- BMUG will try to be a place where anyone, and everyone, that cares about computing will be welcome. We've demonstrated that computers can be a unifying interest to bring people together. The folks that cross the threshold of the BMUG office, and come to our meetings, are a diverse group of different ethnicities, ages, genders, religions, sexual preferences, and national origins. We learn from each other, and share our knowledge and spirit. Can we do better? Of course. But we're making the effort.

Notice something missing? The "M"-word. It doesn't mention the Macintosh! BMUG's mission is to the future of computing, not to any specific product, or operating system. Does this mean that we're tossing our Macs out the back door in favor of another box? No way! But it does demonstrate our commitment to the future of all computing, computers, and users.

A Suit and Two Pair of Pants

An important event in the BMUG chronicle occurred during the last days of August 1990. BMUG filed an *Amicus Curiae*, friend of the court, brief in the United States Court of Appeals on behalf of our members and all computer users, in the Lewis Galoob Toys vs. Nintendo case. Stephen Howard, BMUG regular and ex-Board member, coordinated our fact gathering for Ruth Herring, our lawyer. He also met with the Galoob attorneys, educating them on our concerns. You can read BMUG's arguments in Stephen's article about the case further on in the Newsletter.

For all the sophistication of the hardware and software sitting on our desktops, we are still in the infancy of the Information Age. The future interfaces of man and machine are being decided by lawyers and judges applying legal principles filtered through experiences with older more concrete media.

The distinctions between the creation and experience of hypertext and linear materials are perfectly clear to Macintosh users, but not to the computer uninitiated. The only thing hyper in their lives are their children. Try explaining to someone why having something in text (data) is great—a dictionary, or encyclopedia? They roll their eyes up to the sky and look pained. They don't have our vision, even though their eyesight is better than our VDT-strained set.

Even more frightening is the low level fear of new technology that permeates our society. It's hardest for us to understand, since silicon flows through our veins, but most humans are not clued into the upcoming virtual reality. The District Court judge that ruled in Nintendo's favor wouldn't allow a Nintendo game in the court room!

BMUG is one of the few organizations with the knowledge, expertise, reputation, and persistence to be a creditable resource to policy makers. In the months ahead we will be planning a strategy to carry our message to legislators, and other industry groups.

To Dream, Perhaps to Schlep

Last summer, about 50 BMUG regulars, staff, Board and activists, gathered together for another day-long session to plan, think, and mostly talk about our short and long term development.

Past retreats have been rather free-form, but this time we were firmly guided by Bernard Aboba, fresh from completing his Doctorate in Petroleum Engineering, and who blew our minds by starting on his M.B.A. this Fall. We broke into groups, made lists, dreamed, and complained. One of the sessions brainstormed things we might do if BMUG won the Lottery. Here's a small sampling of the thinktank at work:

- BMUG-TV. A way to bring BMUG into the your livingroom. We could produce training, educational, and computer news videos, as well as programs that might be broadcast.
- Create a do-it-yourself repair center. This would be similar to a local group that teaches people how to build their own houses.
- A hardware and software testing facility for users and developers.
- Increase our outreach and assistance to other non-profit groups, students, and senior citizens.
- Fund a BMUG Press.
- Create a super BBS, or BMUG information service.
- Commission useful software and become the People's Microsoft.
- BMUG-mobile: equip a van with solar power supply, computers, and everything needed to bring a BMUG meeting anywhere.
- Buy a timeshare condo in Boston to use during summer Expos.
- Buy a Ferrari with BMUG logo to cruise around town—you have to get a drivers license first!

I know that every BMUGer could add a page to that list. There's one thing about dreaming—it's easy. The actual work, from planning to finish, is a different matter. BMUG is blessed with fantastic volunteers, Special Interest Group leaders, and staff that know how to get the jobs done. The burden of leadership and responsibility falls heavily on our local membership. They're the volunteers that answer the HelpLine, keep the BBS going, and edit the Newsletter. Here are a few of the people that are making a difference at BMUG—I'm sorry that I can't name everybody—if I've slighted anyone, please forgive me.

- The BMUG Staff. We're lucky to have a group of hard-working, professional, talented, and spirited individuals working in our office. It's a privilege to work closely with Alisa, Art, Betsy, Gerald, Jacqueline, Michele, Randy, and Steve. I applaud their patience in dealing with the demands of Board members, volunteers, and the day-to-day hassles of BMUG life.

Steve Costa has been almost living in the Office, now that he's our Acting Director.

Randy Simon worked on the Newsletter layout at his parent's house in Las Vegas during the Thanksgiving holiday.

Betsy Kennedy has been busy coordinating the BMUG HelpLine. She really knows her stuff, and is creating a help-base for our volunteers.

Art and Gerald, our disk librarians, have almost been buried by the mountain of disks that make up the BMUG PD Software Library.

I welcome our new receptionist, Michele Carpender, to the crew.

I ask that members remember that not all of our office staff are Macintosh nuts. Alisa Schulman, our Office Manager, and Jacqueline Anderson, Membership Services representative, are pleased to handle mail-order business and membership inquiries, but can't help you with a HelpLine call, or the specifics of a piece of shareware. Remember BMUG when you're moving—the Office needs your new address!

- Greg Dow is again pushing the Disk Catalog into existence. He's always been there when we've needed him.
- Chuck Francis did all the work on the HyperCard side of the Catalog—a job that no one's been willing to touch for three years.
- Ron Hipshman is our Exploratorium liaison for the meetings in San Francisco.

- Robert Lettieri is one of BMUG's main desktop publishing and graphics experts. He's leading an effort to create a hands-on multimedia center at the BMUG office. This is some of the most exciting technology in the computer world, but there's no place to see it in action, or make some media mudpies. If you're a multimedia hardware and software developer, we could use some help!
- Bob Olhsson, our resident genius sound engineer, made it possible for the BMUG Audio Newsletter to get off the ground.
- Derrick Schneider has been editing a useful new book on ResEdit 2.0. It will be out sometime in the first quarter of 1991.
- David Schwartz, one of our HelpLine volunteers, donated the proceeds of a consulting job. I hope his example of *giving back* will be an example to people that have been helped with jobs, careers, and otherwise emotionally jump-started by BMUG.
- Gray Shaw has been the primary BMUG meeting transport, with his ancient, but still chugging, VW Bus.
- The BMUG BBS team has really been putting everything together. Bernard Aboba, Michael Angell, Raines Cohen, Ari Davidow, and Gray Shaw have been working hard to keep the BBS in order.
- The BMUG Newsletter team is putting in long hours right now. Michael Ellard, Tim Holmes, Alex Lau, Robert Lettieri, Persephone Maywald, Joe Urcia, Karen Voorhees and Dan Wood are racing toward the printing deadline.

The BMUG PD ROM team finally worked out all the bugs and are resting. Glenn Bookout, Raines Cohen, Greg Dow, Brian Hamlin, Stephen Howard, Jay James, Tom Lippincott, Dave Newman, Leonard Rosenthol, and the BMUG Staff, all made the new version possible. Time to get started on 3.0 edition, guys!

BMUG needs the assistance of every member to help keep the group strong and productive. We hope to see your articles in Newsletters, and other publications. We need information on products and problems. We need your financial support through memberships and donations. We count on every member, near and far, to keep the BMUG spirit, evangelize the group, and get the word out to users everywhere—BMUG's where it's happening!

What, 'Ware, When
(What Ware is It?)

by Greg Webb
University of Technology, Sydney

Computer software comes in various flavours: shareware, freeware, public domain and commercial. As far as I know these terms have no significance in law and yet

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they are widely used by software authors and end users to describe the end user's rights in respect to a particular piece of software. The type of rights we are talking about are whether or not there are restrictions on copying the software, and whether or not the author requires payment in exchange for the use of the software.

At the core of the issue is copyright. A software author holds the copyright on a piece of software unless he or she is an employee engaged to write software. Copyright law gives the author legal protection against anyone copying their work. In most parts of the world infringing an author's copyright (copying without permission) is a criminal act. This protection means that the author can capitalise from the copyright because they have the right to say who can and who cannot copy and use their work. Some copyright holders choose not to capitalise from their copyright.

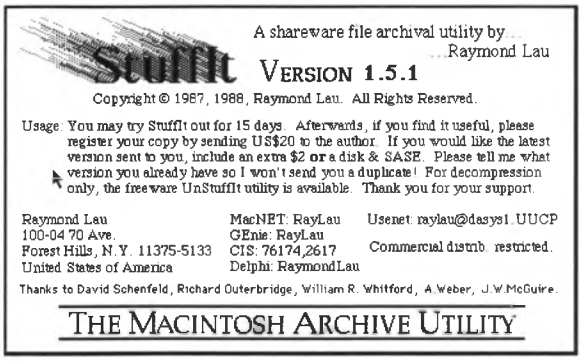
So, the software author has the right to say who can copy their software and therefore who can use it. One way authors capitalise from their copyright is to use a software distributor to copy and sell their software. The author may sell the copyright to the distributor or they may licence the distributor to make copies of the software. The distributor pays the author for the copying rights. Software distributed in this way is referred to as *commercial software*.

The software author and the software distributor are not always different people. For example, the companies Microsoft and Borland both develop and distribute their own software. However, to understand the terms shareware, freeware and public domain it is important to be aware of the two distinct roles played by author and distributor.

Software is not always distributed through commercial channels. A software author may not be able to find a distributor to take his or her software, or, the author may not want any recompense for the work. An alternative to commercial distribution is to let the software be freely distributed by members of the public. The author is said to have put the software in the *public domain*. Putting a piece of software in the public domain does not necessarily mean that the author has given up all his or her rights to copyright protection. The author usually makes it clear what parts of their copyright protection they are giving up and what parts they are retaining. For example, a copyright author may allow the software to be freely distributed but not freely used, or the author may permit free distribution, free use of the software, but retain the rights to the program instruction code.

Public domain software that may be freely distributed but not freely used is called *shareware*. The author asks the user to send him or her a specified amount of money in

return for using the software. See Figure 1 for an example of a shareware notice.


A shareware file archival utility by
Raymond Lau
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Thanks to David Schenfeld, Richard Outerbridge, William R. Whitford, A.Weber, J.W.McGuire.
THE MACINTOSH ARCHIVE UTILITY

Figure 1: Example shareware notice

Public domain software that can be freely distributed and freely used is called *freeware*. The author expressly states that no financial recompense is required to use the software. See Figure 2 for an example of a freeware message.

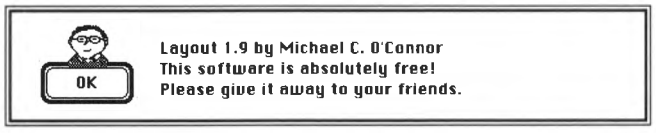


Figure 2: Example freeware notice

Why do software authors distribute their software under the shareware system? Some possible reasons are:

1. they cannot find a commercial distributor to enter into a mutually beneficial agreement,
2. they resent the high cost of commercial software and therefore want to cut out the 'middle' men (a software author typically gets 10-15% of the recommended retail price), or
3. they don't consider their software to be of sufficient value to go through the commercial channel but would like some minimal recompense for their effort.

Some reasons as to why some authors distribute their software under the freeware system are:

1. they don't consider their work to be of such significance that it should be charged for,
2. they did the work for themselves and are only too pleased if others can benefit from the same work,
3. it was a one-off piece of work for which the author does not plan to do any maintenance or support work, or
4. they did the work for the fun of it.

Some authors have coined variations on the shareware and freeware theme:

HappyWare . . . if you like it smile

JobWare . . . . . If you use my software offer me a job or send me a job ad

CardWare . . . . If you like it send me a postcard of your home town

SoftShare . . . . . If you use my software, send me some of yours

Most authors include phrases such as 'may be freely distributed but not for profit'. This means the author does not want a recipient to profit from his or her work. This type of condition not only prevents the recipient from selling the software commercially, but also prohibits the software code from being incorporated into another program which is offered for sale. If the author permits recipients to re-use the author's program code, the author will explicitly provide that permission. See Figure 3 for an example.

/*
FILENAME: IconWrap.c (for LightspeedC 3.02)
This file is copyright ©1989 by Ken McLeod.
Permission is granted to use and distribute this code freely.

Figure 3: Example permission to re-use an author's program code

The author will put their individual conditions governing the use of a piece of software in a notice which is normally displayed when the software is first launched (that is, started). If the conditions are not specified at start-up, then they are probably contained within the documentation that accompanies the software. In Macintosh software, the notice is usually contained in the About... selection under the Apple ( ) menu (Figure 4).

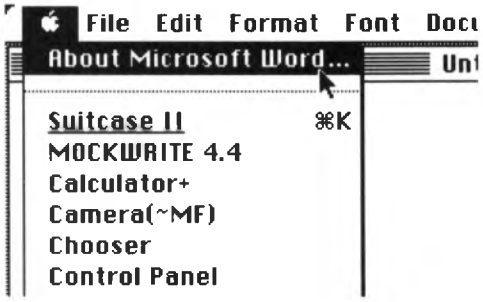


Figure 4: The About... selection under the Apple menu

How do you know if a piece of software is commercial or not? It's very simple really, assume that it is commercial unless there are statements in the software itself or in the software's documentation that specify that it has been distributed through non-commercial means and that different conditions apply. Commercial software does not state that it is 'commercial' software, merely that it is *copyright*. Copyright is signalled by either the word 'Copyright' or the copyright symbol '©' followed by a date and the name of the author. For example:

© 1990, Greg Webb

Often, but not always, the phrase 'all rights reserved' will be included in the notice. Figure 5 is an example of a notice for commercial software.

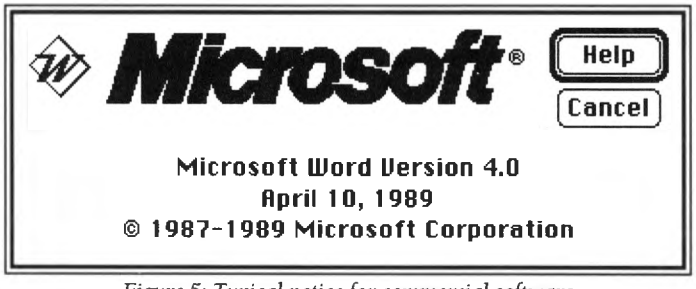


Figure 5: Typical notice for commercial software

Where do you find public domain software, be it shareware or freeware? The normal source of public domain software is user groups. User groups have libraries of public domain software that is available to its membership. Most user groups also operate *bulletin boards*, which are computer systems from which you can download software to your own computer. Some individuals operate private bulletin boards as a hobby.

User groups and private bulletin board operators collect new software for their boards by accessing other bulletin boards. To get software distributed through the public domain, a software author has only to place a copy of their software on one bulletin board for it to be copied and spread to other boards.

If you do use shareware products and benefit from them then it is worth sending the author their requested fee. That way the author is encouraged to further develop the product and produce new ones. It's a pity shareware authors don't accept credits cards, it would make the business of paying so much easier.

A BMUG Newsletter Editor's Rare Experience

by Judi Clark

*This article describes a combination of two just-past experiences. The first is a loose description of what the Executive Editor of the BMUG newsletter does and goes through in order to produce a newsletter of this nature (400 pages, on a tight schedule, with a long BMUG history behind it). The second experience contrasts with the first, in that what I went through was **not** what everyone else who does this job goes through. The resulting article is really a mix of both these things; that's what it was all about for me.*

Part 1: Expectations

When I first thought of being involved in a big way with some kind of BMUG project, I had (I admit) expectations. First, I thought that, since BMUG has done many of these newsletters, they must have worked out a process that I could follow. I expected to walk in at the beginning, be held responsible for following the process through the deadline, have many hectic days of trying to get things done on time, and be relieved to finish the thing and see it fly out the door. Further, I thought that BMUG would have some resources to tap: something like a volunteer database with skills and interests listed.

Part 2: The Situation

I'm not sure, in retrospect, where I could ever have gotten ideas like these. There was a timeline, but that was where my ideas departed from reality. Ah, youth...

I walked into the process somewhere before the middle. Most of the articles had been received, had been logged in (I hoped), and many had been moved out into the first phase of editing. I didn't know who the editors were, nor did I know what they were editing for. There was no volunteer database; just a loose list of people that I could try calling.

There was no particular system to the process. Articles were stacked up in a few different places for a few different reasons. A few people seemed to know what was going on with the different stacks or states, but no one really knew.

There were these sort-of-checklists attached to the envelope holding each article. Many of them had mysterious scribbles of unknown importance. Some had more scribbles than others. Some of the scribbles looked more important than others. But again, no one really knew.

Some deadlines were quickly approaching. That was something everyone knew.

Part 3: The Process

It was interesting from the start. There was the first round of editing. Mostly grammar, some style, some opinion justification, maybe a bit of article justification. At times, some of the scribbles made sense to someone and there'd be some more opinionating about it. I didn't need to know what the scribbles were about, nor who was opinionating about them. I only needed to check in about those articles now and then. Occasionally I rendered my own judgement and sent the article in question through the first editing steps. I didn't even need to know what the first editing steps were, or who was doing them. Randy (more about him later) was quick to sing the high praises of a woman named Yvonne (later Vonnie), who seemed to have taken the whole newsletter home, piece by piece, to edit. Wow. So far, so good.

We met the first deadline without too many drops of sweat. Onto the technical editing part, where someone was supposed to know more about the programs, comments, procedures and overall Mac-isms than those who wrote the articles. Again, I was referred to the earlier loose list of names of people that might be of some help, but no one knew. I made a few calls, asked a few people who walked in off the street (perhaps they were looking for ways to be a part of BMUG?), imposed on a few new friends and described the need to the people at a general meeting. Some brave souls came forth to offer their expertise, and I was grateful; their names were not on my list.

The "technical editing" deadline came and went, as did the few days after the deadline during which articles continued to trickle in. Even at this point in the process, no one really knew exactly where all the articles were, what state they were currently in, or when they would be returned. This is kind of the BMUG way, I learned. However, as they all returned, they were passed into the capable and many hands of the BMUG "Publications Department." Another small mystery, this is where the articles fell into place and became the rough draft, and later, the final product.

As it became obvious that most articles had found their way home, my job became even less self-evident. I checked in with the Publications Department periodically, but was not asked for further input until indexing became an issue. It was an issue with a short life, and quickly passed. Although I somehow thought I'd know more about the newsletter by now, I really knew very little. It was never in the cards. My last job, although optional, was to call every half hour or hour to the guys that were actually printing out the camera-ready pages on a linoprinter, checking to make sure they were still alive and (by 3:00 am) still awake. By 3:30 am, the whole thing had finished printing, so I (again optionally) rushed off to the airport to put the masters on a plane for a tomorrow-morning arrival at the printers.

Part 4: The People inside BMUG

This could be the dangerous part of my article. There are several people I wish to acknowledge whose personalities are a big part of each newsletter. These people give the basic flavor to the BMUG Newsletter that you are reading.

First there are volunteers. President Bush likes to think of them as "a thousand points of light." There were moments during the making of the newsletter when I may have changed that to "a hundred points, tens of enlightened." The volunteers, especially the ones that came to my aid (because they were the only ones I feel I can really comment on), offered their hearts and special talents at a time when I needed them, for which I am truly thankful. Usually editors of some kind, they took an article or two or three home, read through it, corrected things as needed (or made comments for me to use later), and brought them back, all on short notice. They always smiled at me, and they certainly made my non-disclosed job easier. They are what I think BMUG is, at its heart.

The 'mother' of the newsletter is, I suppose, Randy, our "Publications Department." He's the person who initiated each newsletter process during the time I was conscious of it. He is voted by me to be the person "most likely to know, at any point, where we are and how close we are to the end." In my reign as Executive Editor, I found Randy to be positive, intimately involved in the process, and more in control of some parts of the final product than a few people were comfortable with. He was also the only person who knew anything about the cover design, although some rough ideas (which were similar to the finished product) did surface. During and beyond the final editing stages, Randy was the layout king. Time was short to non-existent at points, leaving little breathing

room, and less time to "tell people what's going on" each day (or as people asked). The final minutes of lino-ing, for which he and Robert were responsible, were some of the longest minutes of the process. Randy wore himself pretty darned thin at the end.

Robert was another essential person, although at the end, neither of us could really describe why. Now I can describe him as the overall support person; the person whom, when we're under great pressure, we wish we had around to do last minute details, carrying things hither and yon, holding our hand, and listening, and listening. He is another volunteer in this process, but one whose hours and conditions of involvement are truly unique.

Finally, there are a few people who, having minds for problem-solving, watched the process outlined above. This is not to say that the process was a problem, for it obviously worked for us (and on time, too!). I will say, though, that there were a few of us who were interested in helping the process evolve. Karen and Tim were very helpful evolutionaries, coming to meetings to read, think through, tear apart and rebuild the parts and steps. I think that the next newsletter Executive Editor should have an easier job of tracking and knowing why things are the way they are because of these efforts. The next story written by an Executive Editor may be short; maybe a paragraph or two. Or you, the reader, may never know.

Finale: The Newsletter

Here it is, in your hands again. Each newsletter is its own unique miracle. It is a living wish by both BMUG members and wannabes alike that we should continue in our un-commercially-biased ways to provide news, enlightenment, entertainment, and most of all Mac-comraderie to the users that support us.

It is important for me to state, at this point, that we all have some unique insights and knowledge. Somebody else in our globo-digital community would like to know what you know, and you may never find out why. I encourage you to toss your ideas into the process. The BMUG newsletter can only become better because of our collective knowledge and experiences. The whole world can only become better because we know how to share.

BMUG Choice Products

This list represents the collected opinions of experienced Mac users and the resident experts, power users, and trusted cohorts of BMUG, not the opinion of BMUG, Inc. or its board of directors. Really.

We only list items recommended by people who have actually used them, not just read about them or tried them out in a store. The quality of the items listed ranges from *superior to anything else on any computer* all the way down to *least objectionable of what's available*. Order listed is not an indication of preference. If an alternative exists, we don't list copy-protected software.

Prices listed are in the form: *list price/cheapest price we've found*, assume you can find an even better price. Don't assume a pricey product is better than one that's almost free. Some publicly distributable software is of higher quality than similar commercial products.

Most products are less expensive when purchased at your local Mac store or ordered from mail-order companies (check out the ads in magazines such as *Macworld, MacUser,* and *MacWEEK).* Large retail computer chains (i.e., Businessland or ComputerLand) will probably laugh in your face if you try to bargain down their prices. At least you can try. If they laugh, then you can laugh as you pick up the phone. Most mail-order products can be in your hands within two days. Some companies offer discounts to BMUG members — it never hurts to ask.

Hardware Choices

Hard Disk Drives

Drives, drives, drives! Still the #1 question around the BMUG offices. Which one should you get? Our recommendation is based on pricing and service-orientation of the various companies.

In addition to low prices, smaller companies generally have great phone support — they even return phone calls when you leave a message. And that's what the larger hard disk drive companies, with the exception of SuperMac, have failed to provide.

Everything from APS . . . . . **40 mb internal: $299; external: $399**
52 mb internal: $329; external: $429
105 mb internal: $499; external: $599
170 mb internal $729; external $829
330 mb internal: $1,499; external: $1,699
630 mb internal: $2,199; external: $2,399
1 g internal: $2,999; external: $3,399

APS has some of the lowest prices on high quality Quantum and Seagate (Imprimis) Wren hard disks. And you get a bonus too: the people are pleasant and knowledgeable on the phone. The prices listed are as of November 20, 1990; the prices may be even lower by now.

Alliance Peripheral Systems, 2900 S. 291 Hwy • Lower H, Independence, MO 64057; 816/478-8300, 800/233-7550, FAX: 816/478-4596

Hammer-series drives . . . . . **various sizes: $695 to $7,495**

The fastest, most reliable, drives in the market today. You pay for it, though, as they are relatively costly (unless you are a large corporate account).

FWB, 2040 Polk Street, Suite 215, San Francisco, CA 94109; 415/474-8055, FAX: 415/775-2125

Removable Hard Disk Drives

DPI 44R . . . . . **$570 (includes one cartridge)**

This drive has been our choice in SyQuest removable drives since they came out in 1988. After thousands of hours of use, we've never had a cartridge fail while in a DPI drive. Well, it was never the drive's fault, anyway.

DPI, 40 Corning Avenue, Milpitas, CA 95035; 408/945-1850, 800/825-1850, FAX: 408/945-8148

Floppy Disk Drives

We don't recommend that anyone buy a second floppy drive before a hard disk, but when you do need one, buy one of these.

Rapport and Drive 2.4 . . . . . **$790**
Drive 2.4 alone **$495**

It's the drive that Apple said couldn't be built, and it's better than the one Apple uses. Designed by former Apple engineer Wendell Sanders, these drives allow all Macs, except for 512K and 128K Macs, to read all sizes of Mac, DOS, and ProDOS disks. It even has its own 2+ MB format.

Kennect Technology, 120 Albright Way, Unit A, Los Gatos, CA 95030; 408/370-2866, 800/552-1232 (Outside CA), FAX: 408/370-0484

CD ROM Drives

PLI CD ROM Drive . . . . . **$699/???**

It's faster than the Apple CD-ROM drive and never had that messy little problem with dust that the Apple drives had.

PLI, 47421 Bayside Parkway, Fremont, CA 94538; 415/657-2211, 408/252-2775, 800/288-8754, FAX: 415/683-9713

Printers

LaserWriter IINTX . . . . . **$6,599/$4,895**

This is the best, standard 300-dot per inch laser printer out there. Based on the Canon SX "print-black" engine, it makes for clean printing with almost no toner splatter. The NTX has a real Adobe PostScript Atlas controller board, 68020 speed, and a SCSI port for a hard disk full of downloadable fonts and font caching (virtual memory reached your printer first).

Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014; 408/996-1010, 408/252-2775, 800/776-2333 (customer sales and support), FAX: 408/974-6726 (customer sales and support)

QMS ColorScript 100 ..... **Model 10: $8,995/$7,999**
Model 30i: $12,995/$???

How do you make a wonderful printer more wonderful? Why, by making it small, cheaper, and make it do everything the original did better! The Model 10 is great at producing quick drafts of your color artwork, while the Model 30 can only be described as *absolutely wonderful*. Let's get real, we could probably get any of these printers for use in the office, but this is also one of the nicest companies we have ever had the pleasure of dealing with. (blush)

QMS, P.O. Box 81250, Mobile, AL 36689; 205/633-4300, 800/631-2692, FAX: 205/633-0013

QMS PS-410 ..... **$3,200/$1,985**

An affordable Adobe Postscript laser printer that is way faster and less expensive then Apple's NT, can whip out pages in a fraction of the time.

QMS, P.O. Box 81250, Mobile, AL 36689; 205/633-4300, 800/631-2692, FAX: 205/633-0013

DeskWriter ..... **$995/$695**

It's the doom of the dot-matrix printer. The ink sometimes smears, but that's about the only bad thing you can say about this smooth, 300-dpi inkjet printer. Combined with *Adobe Type Manager*, this printer is the best personal printer so far in the Mac world.

Hewlett-Packard Peripherals Group, 16399 West Bernardo Drive, San Diego, CA 92127-1899; 619/487-4100, 800/752-0900, FAX: 619/487-1236

MONITORS

AppleColor 13-inch RGB monitor ..... **$999/$719**

A reasonably priced monitor of excellent quality. Crisp, clean, and enduring; its been a choice product since it came out three years ago.

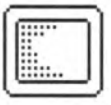
Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014; 408/996-1010, 408/252-2775, 800/776-2333 (customer sales and support), FAX: 408/974-6726 (customer sales and support)

DirectColor 19-inch monitor ..... **$4,295/$3,775**

Another monitor built around the Sony Trinitron Multisync tube, this one is extremely crisp and provides rich color rendition in both 8-bit and 24-bit varieties. It is probably the ultimate two-page desktop publishing monitor. Comes with neat, useful and sometimes none-too-stable software.

Radius, 1710 Fortune Drive, San Jose, CA 95131; 408/434-1010, FAX: 408/954-1015

Sigma Designs L-View 19-inch monochrome monitor ..... **$1,999/$1,495**



This monitor meets the Swedish ELF radiation standards. It also has four additional modes it can run in (36 dpi, 94 dpi, 120 dpi). Very easy on the eyes. Great 2nd monitor for DTP'ing.

Sigma Designs, 46501 Landing Parkway, Fremont, CA 94538; 415/770-0100, 800/933-9945, FAX: 415/770-0110

Apple Portrait Display . . . . . **$1,099/???**

Radius gave BMUG a free full-page display, and we appreciate it, but this one's better. The full page shape isn't to everyone's taste, so try before you buy — always good advice with monitors.

Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014; 408/996-1010, 408/252-2775, 800/776-2333 (customer sales and support), FAX: 408/974-6726 (customer sales and support)

Accelerator Cards

Apple 8•24 GC Graphic Accelerator Card **$1,699**

Let's your screen move just like the *Big Boys!* Now that it's finally out, one of the best things to come to the Macintosh arena since the Mouse. Pricey, but if you're doing any sort of graphic work, it becomes a necessity, not a luxury.

Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014; 408/996-1010, 408/252-2775, 800/776-2333 (customer sales and support), FAX: 408/974-6726 (customer sales and support)

DayStar . . . . . **There are 20 cards — too many to list prices for.**

A wide range of accelerators for almost all Macs. Right now these guys have the fastest and most reliable boards. Heck you can even make your Mac IIci even faster than the Mac IIfx. Give them a call for prices and dealer to buy one. Street prices are much lower than suggested list so give companies like MacConnection a call.

DayStar, 5556 Atlanta Highway, Flowery Branch, GA 30542, 404/967-2077, 800/962-2077, FAX 404/967-3018

Random Access Memory (RAM)

Technology Works . . . . . **1 Mbx8-80ns SIMM: $39**
(as of November, 1990) **1 Mbx8-80ns SIMM (fx): $41**
2 Mbx8-80ns SIMM (ci/si): $145
2 Mbx8-80ns expansion card with 2 Mb: $455
3Mb Upgrade for Mac Classic (incl. Expansion card): $175
64K Cache Card for IIci: $229
1 MB SIMM for NTX: $41
4Mbx8-80ns SIMM for SE/30, cx, ci, si: $215
4Mbx8-80ns SIMM for fx: $219

One of BMUG's favorite companies for more than a year. They are friendly, always helpful, and have some of the lowest prices. Included in all RAM sales is a Mac opening tool and a detailed instruction manual. They have a 30-day unconditional money-back guarantee and even take credit cards. When you call ask for Maureen and tell her you are a BMUG member. These prices are for BMUG members only and may go lower over time.

Technology Works, 4030 Breaker Lane West, Suite 350, Austin, TX 78759; 800/622-2210, FAX: 512/794-8520

Modems / FAX Modems

Courier HST Dual-Standard **9600-baud: $1,000**

The 9600-baud modem market dropped from the sky this year, and now even Hayes provides V.32 capability (the general standard) for under $1,500. Most people don't need 9600-baud speed yet, and most on-line services don't support V.32, but for those who want it now, this is the high-end modem of choice. It provides HST's proprietary speed, 9600-baud V.32 and is Hayes-compatible. It's reliable, too.

US Robotics, 8100 North McCormick Boulevard, Skokie, IL 60076; 708/982-5010, 800/342-5877, FAX: 708/982-5235

SupraModem 2400 ..... **$149/$117**

If you want a good, low-cost, 2400-baud, Hayes-compatible modem, check out this one.

Supra, 1133 Commercial Way, Albany, OR 97321; 503/967-9075, 800/727-8772, FAX: 503/926-9370

Datalink Mac ..... **$279/$199**

This is a NuBus 2400 baud modem with a FAX-sending and an MNP Level 5 option. Rock solid, and the price includes an extra serial port for your Mac II-class machine.

Applied Engineering, 3210 Belt Line Road, Suite 154, Dallas, TX 75234.; 214/241-6060, No FAX

OrchidFax ..... **$599/$425**

The OrchidFax is a send/receive 9600-baud group 3 fax, uses the 9600-baud data standard common to most faxmodems, and supports normal bell standards for 2400 baud communication. We tested it both as a standalone fax device and data modem, and as a networked faxmodem, attached to Solutions' FAXgate gateway for QuickMail. It performed admirably, and was unaffected by heat, even when left on continuously.

Orchid Technologies, 45365 Northport Loop West, Fremont, CA 94538; 415-683-0300

Networking

AppleShare, vers. 2.01 ..... **$799**

For optimum server performance, you need a standalone server. There are other options out there, but *AppleShare* has proven to be an accessible, if not totally reliable workhorse. Leave the rest for the daring. If you need to set up more than two or three servers, get one of Apple's site licenses, which will include the *Print Server* and *Internet Router* at a great price. Of course, if you can hold out until System 7, most of the file sharing capabilities of AppleShare will be built in and you can save the eight hundred dollars.

Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014; 408/996-1010, 408/252-2775, 800/776-2333 (customer sales and support), FAX: 408/974-6726 (customer sales and support)

Public Folder . . . . . **Free (BMUG Disk Util 21)**

A great Chooser document by Michael Pierce that allows you to exchange files with other Macs on a network. The best minimum connection until System 7.0 comes out. It also works with two Macs connected through a printer cable, for a really skimpy network.

Claris, 5201 Patrick Henry Drive, P.O. Box 58168, Santa Clara, CA 95052-8168; 408/727-8227, 800/544-8554 (upgrade orders only), FAX: 408/987-7447

PhoneNET Plus . . . . . **$59.95/$32**

These are the best LocalTalk-compatible connectors for most purposes. Well made, easier to use, and less expensive than what Apple offers. The PhoneNET system lets you use existing phone wiring in your office or home, but even if you don't, you can create networks over four times longer than you can with Apple-labeled LocalTalk connectors. Farallon has some of the best technical support around which, together with their software, make them our preference from among a field of imitators.

Disclaimer: The current president of Farallon used to be the founder of BMUG.

Farallon Computing, 2000 Powell Street, Suite 600, Emeryville, CA 94608; 415/596-9100 (main office), 415/596-9000 (customer service), FAX: 415/586-9020

TeleBridge **$499**

This is what you need if you have a network and people who want to use a modem, or dial-in from another location, or share a serial device. The TeleBridge is a combination of Shiva's previous products (the NetModem and NetSerial) into a single, better package. It's slow with a 2400-baud modem, but, hey, it sure beats driving 32 miles round-trip when you've forgotten a file you need to work on!

Shiva, 155 Second Street, Cambridge, MA 02141; 617/864-8500, 800/458-3550, FAX: 617/864-0914

EtherPrint . . . . . **$499/$339**

Dayna's EtherPrint box is a single device gateway designed to make individual laser printers or similar devices appear directly on the Ethernet. They work as advertised, and are remarkably inexpensive, compared to full routers, which typically sell for $1,500 and up.

Dayna Communications, 50 South Main Street, 5th Floor, Salt Lake City, UT 84144; 801/531-0600, 801/972-2000 (Technical Support)

EtherGate . . . . . **$2,399/$1,618**

The EtherGate has always been a remarkably versatile means of providing network services. It has a switchable ThinNet/AUI Ethernet port, and two very Mac-like serial ports. Each serial port can be configured either as a LocalTalk router, a serial device server, or both a half-router and a modem pool server. As of August, 1990, a revision to the EtherGate software allows them to act as TCP/IP half-routers, and to do MacIP to TCP/IP translation, as well. They are by far the most intuitive and inexpensive TCP/IP half router on the market today.

Shiva, 155 Second Street, Cambridge, MA 02141; 617/864-8500, 800/458-3550, FAX: 617/864-0914

Ethernet/AppleTalk Router

GatorBox . . . . . **$2,795/$1,950**

Cayman's GatorBox is one of the first AppleTalk-to-Ethernet gateways, and has progressed steadily in capabilities and reliability since its release. With the addition of a $1,200 software upgrade, it is capable not only of the standard LocalTalk to EtherTalk and MacIP to TCP/IP translation, but of NFS (Unix file sharing protocol) to AFP (AppleShare) translation, as well, making it invaluable to sites which use Unix machines, Macs, and PCs. In addition, SMTP to QuickMail and SMTP to MS Mail translation gateways are available on a per-user or site license arrangement. The management software is intuitive and easy to understand, even to someone unfamiliar with Ethernet and TCP/IP protocols.

Cayman Systems, University Park at MIT, 26 Landsdowne Street, Cambridge, MA 02139; 617/494-1999, FAX: 617/494-9270

Word Processing

WriteNow, vers. 2.2a . . . . . **$149/$107**

Arguably, the best general-purpose word processor. Version 2.2 does all the things you'd want a word processor to do, like save documents as text file, and also sports a more refined interface and mail merge. It will still not paste an image larger than 32 kilobytes, but that just makes us love it more. Much of the interface weirdness was fixed between versions 2.0 and 2.2.

T/Maker, 1390 Villa Street, Mountain View, CA 94041; 415/962-0195, FAX: 415/962-0201

MacWrite II, vers. 1.1v1 . . . . . **$295/$159**

Slow on a Mac Plus, but a solid program, especially for those who grew up with *MacWrite*. With Version 1.1v1, you can read and write a library of different file formats using Claris' XTND file translators.

Claris, 5201 Patrick Henry Drive, P.O. Box 58168, Santa Clara, CA 95052-8168; 408/727-8227, 800/544-8554 (upgrade orders only), FAX: 408/987-7447

Word, vers. 4.00D . . . . . **$395/$245**

When your DOS-based friends claim there are no real word processors for the Mac, launch *Word*. They'll probably think it's easy to use. We know better, but there just isn't an alternative for heavy-duty work with words. There's a reason this is still the most popular. Version 4.00D fixes some small problems using Word with the Mac IIsi - call for free maintinance upgrade.

Microsoft, 1 Microsoft Way, Redmond, WA 98052-6399; 206/882-8088, 800/426-9400, FAX: 206/883-8101

WORD PROCESSING TOOLS & UTILITIES

Spelling Coach Professional, vers. 3.1a . . . . . **$195/$118**

Valuable for any author or professional writer, *Coach* has one of the largest dictionaries available on a personal computer, containing about 1.5 million words including complete definitions, a full thesaurus, technical, medical and legal dictionaries, etc. You pay for it in RAM use and disk space, and it can be buggy with various INITs, especially virus detection INITs. It can be set to automatically load into the application you're using. Doesn't seem to want to work properly with MacWrite II, vers. 1.1v1. When you can get through, their tech support isn't too bad - but could use some improving of their *human interface*.

Deneba Software, 3305 Northwest 74th Avenue, Miami, FL 33122; 305/594-6965, 800/622-6827, 800/733-6322, FAX: 305/477-5794

Big Thesaurus, vers. 1.1 . . . . . **$99/$87**

The psychology of an on-line thesaurus user: "We use 'em but we don't trust em." Then again, compared to removing your hands from the keyboard to thumb through the old 3D ruffage, they're not only a near sci-fi thrill, they're fast. The problem is satisfying the urge to have every obscure, dazzling gem at your fingertips — that many words an on-line thesaurus just can't deliver. So, when it comes to on-line thesauri, size counts; Deneba's is biggest. Note: Big Thesaurus is included in *Coach Professional*.

Deneba Software, 3305 Northwest 74th Avenue, Miami, FL 33122; 305/594-6965, 800/622-6827, 800/733-6322, FAX: 305/477-5794

Acta Advantage, vers. 2.0 . . . . . **$130/$74**

The best general-purpose outliner or note-taker available comes as an application and a desk accessory. A clean, intuitive interface makes it easy; a history of widespread compatibility makes it a sure thing.

Symmetry, 8603 East Royal Palm, Suite #110, Scottsdale, AZ 85258; 602/998-9327, 800/624-2485, FAX: 602/991-0572

EndNote . . . . . **$129/$109**

EndNote is just one of those things you have to have if you do any research. It is a bibliographic database that works with *Word*, *MacWrite*, *WordPerfect*, and *WriteNow* to make your references conform to a multitude of academic and professional formats.

Niles and Associates, 2000 Hearst, Suite 200, Berkeley, CA 94709; 415/655-6666, FAX: 415/649-8179

Disclaimer: A Niles employee was a past member of the BMUG Board of Directors.

Enhance, vers. 2.0 . . . . . **$375/?**

An outstanding grey scale editing program for retouching and enhancing scanned and other TIFF images. Besides the extensive state-of-the-art tools for image manipulation, the program is very FAST. As a bonus, Enhance includes colorizing options which, while no substitute for PhotoShop, can be useful. Another example of a small unknown company producing software that surpasses the current offerings of The Big Boys.

MicroFrontier, 7650 Hickman Road, Des Moines, IA 50322; 800/388-8109, FAX:515/278-6828

Canvas, vers. 2.1 . . . . . **$295/$185**

Of the hybrid painting/drawing programs out there, Canvas is still the one to beat for versatility and power. You want the ability to open and manipulate documents in several different graphics formats, a dazzling array of tools and the power to edit them extensively, and a DA for those who haven't added a meg or two to their machines, Canvas is it. Even includes a spelling checker, of all things, which will analyze any text in a graphics document.

Deneba Software, 3305 Northwest 74th Avenue, Miami, FL 33122; 305/594-6965, 800/622-6827, 800/733-6322, FAX: 305/477-5794

Photoshop, vers. 1.0.7 . . . . . **$895/525**

It's like having a Scitex in your Mac — if you have to ask, this isn't for you. Able to leap tall buildings in a single swoop of the mouse. Stretches, pulverizes, maneuvers images like nobody's business. Can makes the impossible happen right before your eyes. If you're into heavy-duty image processing this is a must have.

Adobe Systems, P.O. Box 7900, Mountain View, CA 94039-7900; 415/961-4400, 800/344-8335, FAX: 415/961-3769

Easy Color Paint, vers. 2.0 . . . . . **$89 (demo on BMUG disk: Paris 19)**

A nifty, inexpensive color painting program that really can do the job. Easy to use and has many of the same features as the high-end stuff (MultiColor palets, resizable windows).

Creative Software, 55 Clinton Ave., New Providence, NJ 07974; 201/665-9361, 800/367-6899

Swivel 3D, vers. 1.2 . . . . . **$495/$294**

The most interactive 3D graphics you'll ever use (unless you work for NASA or DARPA), though it will eat up all the cpu power you have and then some. It supports many different formats, but it shines with PICS for animations.

Paracomp, 123 Townsend Street, Suite 310, San Francisco, CA 94107; 415/543-3848, FAX: 415/882-0522

Illustrator, vers. 3.0 . . . . . **$595/$349**

Currently, version 3.0 of Illustrator knocks the socks off of FreeHand; we'll have to wait until 3.0 of FreeHand is released to see if there is a difference. (Note: Illustrator 3.0 *requires* the use of *Adobe Type Manager* which comes bundled with it.)

Adobe Systems, P.O. Box 7900, Mountain View, CA 94039-7900; 415/961-4400, 800/344-8335, FAX: 415/961-3769

MacroMind Director, vers. 2.0.1 . . . . . **$895/439**

A wonderful animation program for those who have Mac IIs or better. With this alone you can do beautiful pictures; with a color scanner or 3D program, you can make terrific shows. Of course, in color this program will make your Mac inhospitable for Multifinder (and you thought five megabytes were enough). A lot of people think the interface is a bit rough, but a new version is available that supposedly takes care of those complaints.

MacroMind, 410 Townsend Street, Suite 408, San Francisco, CA 94107; 415/442-0200, FAX: 415/442-0190

PAGE LAYOUT

PageMaker, vers. 4.0a . . . . . **$795 / $499**

Version 4.0a fixes some of the problems that plagued this newest version. Aldus Tech Support, however, is unaware of it's existence (*very strange*). Just be sure when your talking with them, you stand your ground — they seem to be getting just-a-tad patronizing nowadays. They are helpful, but I didn't shell out 500 bucks to be treated as if I didn't know how to use a Mac. Also, don't you find it strange that the company that first gave us WYSIWYG page layout — has now taken it away — *Hello, Story Editor!*

Aldus Corporation, 441 First Avenue South, Seattle, WA 98104; 206/628-2040 (technical support), 206/628-2320 (customer relations); FAX: 206/343-4259

DataShaper, vers. 1.2 . . . . . **$179.95**

This puppy installs a filter into PageMaker that allows you to import tab-delineated data straight into a pre-designed layout! If you make catalogs or other documents that require you to input long lists of the same thing — with changes happening all the time — this is a must have!

ElseWare, 713 N.E. Northlake Way., Seattle, WA 98105; 206/547-9623, FAX: 206/632-7255

FrameMaker, vers. 2.1.1 . . . . . **$995/$499 educational and volume purchases**

FrameMaker redefines the high end in desktop publishing, and is the best tool for long structured documents like books and manuals. FrameMaker includes word-processing, a full complement of drawing tools, an equation editor, the best spell checking in the business, and the best search-and-replace capability. FrameMaker is also a great tool for group editing projects, and it runs on several Unix platforms (most notably Suns and NeXTs).

Frame Technology, 1010 Rincon Circle, San Jose, CA 95131; 408/433-3311

Fonts

Adobe Font Packages ..... **$95 to $370/$75 to $260**

We've seen them all, and although Adobe's fonts are typically more expensive than their competition, the quality is impeccable. Now that Adobe has released their proprietary Type 1 format, these fonts should become even more popular because more utilities will work with them.

Adobe Systems, P.O. Box 7900, Mountain View, CA 94039-7900; 415/961-4400, 800/344-8335, FAX: 415/961-3769

AGFA/Compugraphic Fonts **$149**

Compugraphic has some of the best PostScript fonts around that Adobe doesn't have. Type 1 versions are out, and the amount of duplication of Adobe faces is down to a minimum (of course, they also license the complete line of Adobe faces, but hey — business is business.)

AGFA/Compugraphic, 90 Industrial Way, Wilmington, MA 01887; 508/658-5600, 800/622-8973, FAX: 508/657-8268

Foreign Language Fonts ..... **$49.95 to $149.95**

The largest and best collection of foreign language fonts in the Mac world. From an excellent Hebrew font to a Thai font. This is where we send all those odd U.C. Berkeley professors. Not everything is available in PostScript, though, so you'll need to check.

Linguists Software, 925 Hindley Lane, Edmonds, WA 98020; 206/775-1130

Casady & Greene, Inc. ..... **$79.95 to $179.95**

One of the nicest selection of display faces around. Also, you should check out their Cyrillic faces, and not just in Times and Helvetica either! (Cyrillic Garamond...where will it all end?)

Casady & Greene, P.O. Box 223779, Carmel, CA 93922-3779; 408-624-8716, 800-359-4920 (sales), FAX: 408-624-7865

Font Utilities

SuitCase II, vers. 1.2.6 ..... **$99/$49.95**

Be sure you have this version - it is *very* stable, which cannot be said for the previous versions. For the past year - all the problems people have had with SuitCase have *vanished* once they have upgraded to this version. Not the best user interface.

Fifth Generation Systems, 10049 North Reiger Road, Baton Rouge, LA 70809-4559; 504/291-7283 (technical support), 800/873-4384 (sales), FAX: 504/295-3268

Adobe Type Manager, vers.2.0 . . . . . **$99/$51**
Plus pack Fonts: $149/$99

Twice as fast as 1.2,even on a Mac Plus, Adobe did their homework on this upgrade. They also include *Font Porter* - a poor man's version of SuitCase (I'd go get the real one for any *serious* work.) Be warned: you need the relatively expensive *Plus Pack* to get all 35 fonts built into most laser printers.

Adobe Systems, P.O. Box 7900, Mountain View, CA 94039-7900; 415/961-4400, 800/344-8335, FAX: 415/961-3769

MenuFonts, vers. 3.0 . . . . . **$99/$49.95**

Forget *ATR* (*Adobe Type Reunion),* this is the utility you've been looking for. Sure, *ATR* compresses your font list, but if you use tons of fonts — that just won't do. With MenuFonts, you just type the first letter of the face you want. (i.e., moving from Adobe Garamond to Zapf Dingbats with one keystroke!) It also does sample views of fonts on the fly and keeps the menu set with fonts in their own face -*or*- in Chicago (for those pesky *pi* faces). Version 4.0 will also give you all the capabilities of *ATR* and still let you use these other features.

Dubl-Click Software, 9316 Deering Avenue, Chatsworth, CA 91311; 818-700-9525, FAX: 818-700-9727

PopChar, vers. 1.1 . . . . . **Freeware**

PopChar displays all the characters of your current font in a window that pops up at the top of your screen. Select the character and it will automatically be pasted into your document. This utility comes in handy when you forget where the special characters are hidden, or when you use a dingbat font.

Günther Blaschek; Petzoldstr. 31; A–4020 Linz; Austria

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

Quote INIT, vers. 2.1 . . . . . **$15 shareware (BMUG Disk: FKey 1)**

Quote INIT will map certain keyboard keystrokes to more *typographically correct* keystrokes. It converts straight quotes and apostrophes to curly ones, converts double dashes to real em dashes, and create ligatures for fl, fi, oe, and ae. You may specify the use of any or all of these conversions.

Lincoln D. Stein; 44 Boynton St. #3; Jamaica Plain, MA 02130

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

The TypeBook, vers. 1.2.8 . . . . . **$45 shareware (BMUG Disk: Font 44)**

While everyone is waiting around for the BMUG Type Book to finally make an appearance — this little ditty will do just fine. It will read the fonts you have installed in your system and print out a very respectable sample page. It even lists the character sets — so you don't have to do as much hunt & pecking to find a special character. The pages are set up to be three-hole punched and the layout accommodates printing the character set on the back of the page.

Jim Lewis, 2137 Candis Ave., Santa Ana, CA 92706; 714/542-5518; CIS: 71650,2373

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

Databases & Spreadsheets

FileMaker Pro ..... **$299.99/$218**

This is a pleasure to use. Can link up with other *FileMaker* files over a network without additional software to make sharing data painless (abet, slow). Some of the new features included are: better graphics handling, zooming abilities, password protection, a not too extensive HyperCard-like help file, and a new graphical, color interface

Claris, 5201 Patrick Henry Drive, P.O. Box 58168, Santa Clara, CA 95052-8168; 408/727-8227, 800/544-8554 (upgrade orders only), FAX: 408/987-7447

4th Dimension, vers. 2.1 ..... **$695/$440**

When you hit *FileMaker's* ceiling and need what a versatile relational database can do for you, *4D* is one of the reasons you'll be glad you have a Mac instead of a box with a heart of DOS.

Acius on the verge of releasing modular add-ons, including a word processor, drawing program, 3D graphics, and spreadsheet, as well as a compiler.

ACIUS, 10351 Bubb Road, Cupertino, CA 95014; 408/252-4444, 408/252-DEMO (to order demonstration versions), FAX: 408/252-0831

Excel, vers. 2.2c ..... **$395/$245**

This is the *Lotus 1-2-3* of the Mac world. Looks like Microsoft has defeated the spreadsheet competition soundly. There is more to *Excel* than you can easily learn, and though other programs offer nice improvements here and there, you should learn this first.

Microsoft, 1 Microsoft Way, Redmond, WA 98052-6399; 206/882-8088, 800/426-9400, FAX: 206/883-8101

WingZ, vers. 1.1a ..... **$395/$250**

Informix set out to beat Excel, and they did fairly well. There's one thing Excel has that we miss dearly, and that's split windows. Also, Wingz supports 24-bit graphics, not just 8 bit. It imports Excel 2.2a files, too.

Informix Software Inc., 16011 College Boulevard, Lenexa, KA 66219; 913/599-7100

HyperCard, vers. 2.0 ..... **$49.00/???**

Version 2.0 of HyperCard includes features like multiple stacks open at once and faster script execution time; pretty much *more* of everything. It also needs System 6.0.5 to run, and is pretty slow on a Mac Plus. Also, don't call Apple for help, that's only available through Claris now.

Claris, 5201 Patrick Henry Drive, P.O. Box 58168, Santa Clara, CA 95052-8168; 408/727-8227, 800/544-8554 (upgrade orders only), FAX: 408/987-7447

TELECOMMUNICATIONS

MicroPhone II, vers. 3.01 . . . . . **$295/$195**

We used to think this was over priced, but with version 3.0 finally out, it's worth every penny. Always easy to understand, and fast, it is now the most programmable and extensible communications software on the Mac (see you later *MacKnowledge*, this puppy supports XCMDs!).

Software Ventures, 2907 Claremont Avenue, Suite 220, Berkeley, CA 94705; 415/644-3232, 800/336-6478 (inside California), 800/336-6477 (outside California)

Disclaimer: Two Software Ventures employees serve on the BMUG board of directors.

FreeTerm . . . . . **Free (BMUG disk: Telecom 3)**

Simple, bare bones telecommunications program that is free and easy to use. It also downloads as fast as heck. If you don't need fancy scripting features, then stick with this one and spend more time with the kids.

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

ZTerm, vers. 0.85 . . . . . **$30 shareware (BMUG disk: Telecom 5)**

Clean interface and design, speed that is unmatched by other commerical packages like Microphone, built-in support for PC-ANSI color graphics, support for all current file transfer protocols; and cheap.

David P. Alverson, 5635 Cross Creek Court, Mason, OH 45040

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

PERSONAL COMMUNICATION

QuickMail v. 2.2.3 . . . . . **Cost varies depending on size of user pack.**

Electronic messaging is arguably the most revolutionary result of the spread of computers in the past ten years, and QuickMail is the most versatile electronic mail package on the market, with the widest available selection of bridges to other mail systems and services. Reasonably easy to configure and even fun to use, QuickMail could cut memo paper and telephone usage in busy offices in half.

CE Software, 1854 Fuller Road, P.O. Box 65580, West Des Moines, IA 50265, 800/523-7638

QuickDex, vers. 1.6a . . . . . **$60/$47.79**

This is why we bought a computer. A handy desk accessory that lets you look up names, addresses, or anything you like in a blink of the eye. Data files are sharable on a file server, too (although they shouldn't be). HyperCard addicts will prefer a mutant Address stack, but the rest of us use this.

Casady & Greene, P.O. Box 223779, Carmel, CA 93922-3779; 408/624-8716, 800/359-4920 (sales), FAX: 408/624-7865

Financial

MacMoney, vers. 3.5 . . . . . **$119/$90**

Fastest data entry of any Macintosh financial program. It's easy to use, and forgiving. The manual is big and helpful.

Survivor Software, 11222 La Cienega Blvd., Suite 450, Inglewood, CA 90304; 213/410-9527, FAX: 213/338-1406

Quicken, vers. 1.5 . . . . . **$59.95/$51**

If you need a home finance and checkbook program this is the one. It's easy to use and doesn't cost much. It can save to SYLK or text formats for importing wherever you like.

Intuit, 540 University Avenue, Palo Alto, CA 94301; 415/322-2800 (technical support), 800/624-8742 (sales), FAX: 415/322-1597 (supply orders only)

Managing Your Money, vers. 3.0 . . . . . **$213/125**

The higher price appeals only to those who want its unique features. It's the only personal finance package with a stock portfolio management module. It also has planning aids for retirement, children's education, income tax estimation, etc. Andrew Tobias's comments are cute, but they get annoying after a while.

MECA Ventures, Inc., 255 Riverside Avenue, Westport, CT 06880; 203/226-2400

MacInTax, 1990 Federal Edition . . . . . **$99/$59**

This year they have added a set of *questions* that guide you through the process of putting your taxes together. It usually takes about 30 minutes to do the job and then you can convert almost everything from your federal return to your state return. It even includes the forms you need to fill out for electronic filing.

Softview, 1721 Pacific Avenue, Suite 100, Oxnard, CA 93033; 805/385-5000, 800/622-6829, FAX: 805/385-5001

atOnce! **$395/260**

This has become the standard low-level accounting package for the Mac. Modules are Accounts Receivable, General Ledger, Accounts Payable and Payroll. This is the one to buy if the modules fit your needs. Few businesses actually need anything more powerful. An import/export version is due out any day now.

Layered Incorporated, The Schrafft Center, 529 Main Street, Boston, MA 02129; 617/242-7700

Programming

THINK C, vers. 4.0 . . . . . $249/$168

The development system preferred by the BMUG Developers SIG. The lightspeed-fast compile and link times, interactive debugger, and good Mac interface make this (and *THINK Pascal*) the compliers of choice for individual and small group projects. They lack version control, so large projects often go for *Apple's Macintosh Programmers Workshop*. *THINK C 4.0* has support for object-oriented programming, the buzzword of the year, and a nifty class library written by BMUG's own Greg Dow.

Symantec, 10201 Torre Avenue, Cupertino, CA 95014-2132; 408/253-9600, 800/626-8847 (inside California), 800/441-7234 (outside California), FAX: 408/252-4694 or 408/253-4092

THINK Pascal, vers. 3.0 . . . . . $249/$168

Like *THINK C*, but for Pascal. The latest version of this supports Symantec's class library, and is *MacApp* compatible. We liked the previous version, so the latest should be great.

Symantec, 10201 Torre Avenue, Cupertino, CA 95014-2132; 408/253-9600, 800/626-8847 (inside California), 800/441-7234 (outside California), FAX: 408/252-4694 or 408/253-4092

Just Enough Pascal . . . . . $125/$52

Makes it fun to learn how to program. A more-or-less complete tutorial on Pascal, but lacking in Mac-specific info, so you shouldn't expect it to teach you how to write a complete Mac application. Requires *THINK Pascal*.

Symantec, 10201 Torre Avenue, Cupertino, CA 95014-2132; 408/253-9600, 800/626-8847 (inside California), 800/441-7234 (outside California), FAX: 408/252-4694 or 408/253-4092

Inside Mac DA, vers. 2.0 . . . . . $20 (BMUG disk: Programming 3)

Inside Macintosh: five volumes, over a thousand pages. *Inside Macintosh DA*: it's little, it's fast, it fits under the Apple. It's the '90s automated. Version 2.0 has added new data and new features, including a note about whether a particular routine will move memory.

Bernard Gallet, 20052 Knollwood Drive, Saratoga, CA 95070

Virus Detection

Disinfectant, vers. 2.4 . . . . . Free (BMUG disk: Utilities 8)

The best virus fighting program is a product of many programmers' generosity and John Norstad's dedication. It's free — yes, free — and gets updated and distributed within days of any new virus discovery.

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

Rival, vers. 1.1.4 . . . . . **$99/$49**

The most unobtrusive virus detection and eradication system available, for those who forget to run Disinfectant regularly. Rival will work in the background silently and invisibly, until it detects a viral attack, at which point it will produce an sound eerie enough to scare one owner's dog out of the room. Comes with one of the coolest CDEV start-up icons ever.

MicroSeeds Publishing, Inc., 7030-B W. Hillsborough Avenue, Tampa, FL 33615; 813/882-8635

General Utilities

Tidy It Up!, vers. 1.0 . . . . . **$15 shareware (BMUG disk: Utilities 22)**

This shareware package will clean up all the clutter in your System Folder. You set the format for the file layout in your System Folder, and Tidy It Up will do the rest for you.

Guy Fiems; Av. Leopold III, 77; B 1970 Wezembeek-Oppem; Belgium

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

Complete Undelete, vers. 1.1 . . . . . **$49.95**

We've all done it at least once: you throw away a file and then minutes or hours later you regret it. This nifty Control Panel document will let you recover that file as quickly as any software out there, and it's simple enough for anyone to use. (Also included in the *911 Utilities*.)

Microcom Systems, Inc., P.O. Box 51816, Durham, NC 27717; 919/490-1277

SuperBoomerang, vers 2.0.2 . . . . . **$129/$79**

Best Overall Utility. This one does it all—it'll find your lost files in seconds, it remembers where you've been, it'll take you to where you want to go, and it lets you see everything about your files as you move around. All features are just a menu away, and if you don't like to use the mouse, you can use the keyboard instead. This dandy utility has only gotten better with time, and promises to be a classic among classics. Want more? SuperBoomerang is now just a part of Now Utilities 2.0, a collection of 12 utilities

Now Software, Inc., 520 S.W. Harrison Street; Suite 435; Portland, OR 97201; 503/274-2800

Symantec Utilities for the Macintosh II, vers. 2.0 . . . . . **$149/$99.95**

This software should come bundled with every hard disk. Symantec added what was missing from *SUM 1.1* (including a few bugs), and kept this best set of file recovery utilities out there. At least, as of this writing.

Symantec, 10201 Torre Avenue, Cupertino, CA 95014-2132; 408/253-9600, 800/626-8847 (inside California), 800/441-7234 (outside California), FAX: 408/252-4694 or 408/253-4092

MountEm, vers. 1.7 . . . . . **$5 (BMUG disk: Utilities 10)**

This FKey is a simpler way to mount a shy SCSI hard disk drive. It uses (with permission) code from Robert Polic's cdev SCSI Probe. One of the better enhancements of an already great application.

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

QuicKeys, vers. 2.0.1 . . . . . **$150/$99**

QuicKeys has been improved this year to include a Recording feature that follows your actions and records macro sequences. QuicKeys has the best mapping of keys on your keyboard to alternate keystrokes—finally a chance to use those function keys.

CE Software, 1854 Fuller Road, P.O. Box 65580, West Des Moines, IA 50265, 515/224-1995, 800/523-7638

CanOpener, vers. 1.1 . . . . . **$125/$64**

You can use *CanOpener* to look through files for keywords, which its good at, but we love it because it extracts data from corrupted files better than anything else. We don't mind the *faux* NeXT interface, either (we're flexible).

Abbott Systems, 62 Mountain Road, Pleasantville, NY 10570; 914/747-3116, 800/552-9157, FAX: 914/769-4680

ON Location, vers. 1.02 . . . . . **$129.95/$75**

Have you ever wondered where that file was that you just *know* you saved *somewhere*? Can't remember if you have it at home or at work? ON Location helps eliminate that frustration. It indexes your hard disk and allows you to search for the name of a file, or even just the words within a document. It can open the document without opening the application using Claris' XTND technology. It was really helpful in putting together the BMUG PD-ROM.

ON Technology, Inc., One Cambridge Center, Cambridge, MA 02142; 617/225-2545, FAX: 617/225-2347

After Dark, vers. 2.02s . . . . . **$39.95/$22**

For this week in the screen savers wars After Dark 2.0 seems to be in the lead. With charming screen savers like fish and the dreamy Satori and amusing Flying Toasters After Dark forged ahead to be the screen saver to have. Priced right too.

Berkeley Systems Design, 1700 Shattuck Avenue, Berkeley, CA 94709; 415/540-5535, FAX: 415/540-5115

Moire, vers. 3.02 . . . . . **$10 (BMUG disk: Paris 8)**

If you don't want to pay a lot of money for a screen saver, get this one. It has wonderfully interesting designs in color on the Mac II, and even comes with a built-in clock. Be warned, will cause problems if used while printing PageMaker 4.0 documents.

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

Chime, vers. 3.6 . . . . . **$10 shareware (BMUG disk: Sounds 23)**

Chime INIT will make your Mac chime on the hour, quarter hour, half hour, three quarter hour, or any combination of the above. You may customize the sound used for the chime, if you are proficient with ResEdit.

Robert Flickinger; 1957 Laughlin Park Drive; Los Angeles, CA 90027-1709

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

Daylight Savings, vers. 1.1 . . . . . Freeware (BMUG disk: Utilities 32)

Daylight Savings is a Control Panel device (cdev) that just sits around in your Mac and does nothing...except those two times during the year when we go onto and off of Daylight Savings Time. It automatically sets your clock forward or back. Why is it a cdev? Just in case we get another President like Jimmy Carter who changed the days when Daylight Savings took effect.

Greg Smith; Bucknell Computer Services; Bucknell University; Lewisburg, PA 17837

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

IconColorizer, vers. 1.52. . . . . Freeware (BMUG disk: Paris 24)

IconColorizer allows pre-System 7 operating systems to display color icons in the finder and in dialog boxes. For those with color screens, your monitors are finally liberated from the drudgery of black and white. IconColorizer displays icl8 and cicn color icon resources. SunDesk 1.1, an alternative free INIT, displays crsr color cursors, but only icl8 color icons.

Robert P. Munafo, 239 Clinton Road, Brookline, MA 02146; 617/738-0650 or 401/246–1814

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

MacLinkPlus Translators, vers. 4.50 . . . . . $95/$87

Have you ever wanted to move your *XyWrite* files over to your Mac and retain all the original formatting? If you had to do it, you had to buy this. Just point and click and you can move dozens of those files from one of those other machines like the Sun or NeXT, or even IBMs. Claris uses these translators in *MacWrite II 1.1*, and Apple in *Apple File Exchange*, making them the industry standard.

DataViz, 35 Corporate Drive, Trumbull, CT 06611; 203/268-0030, FAX: 203/268-4345

MacKeymeleon, vers. 2.0 . . . . . $49.95

If you're scared of *ResEdit* and you wanted to reconfigure your keyboard, this is the utility for you. It can move any key to any key.

Avenue Software Inc., 2162 West Charest Boulevard, Sainte-Foy, Quebec, Canada G1N 2G3; 418/682-3088, FAX: 418/681-1055

ENTERTAINMENT

Solarian II, vers. 1.04 . . . . . **$25 (BMUG disk: Paris 23)**

Amazing 256-color arcade game. Every Mac II owner who likes to play games should have this one. This latest upgrade is now compatible with the on-board video on the Mac IIci or large screens.

Stick Software, c/o Ben Haller, 32 Deerhaven Drive, Ithaca, NY 14850

Shanghai, vers. 2.0 . . . . . **$29.95/$27**

A strategy game loosely based on matching Mah Jong's matching tiles. Looks great in color though doesn't work with the on-board video on a Mac IIci. A terrific computer game for people who don't like computer games.

Activision, 3885 Bohannon Drive, Menlo Park, CA 94025-1001; 415/329-0800, FAX: 415/322-0260

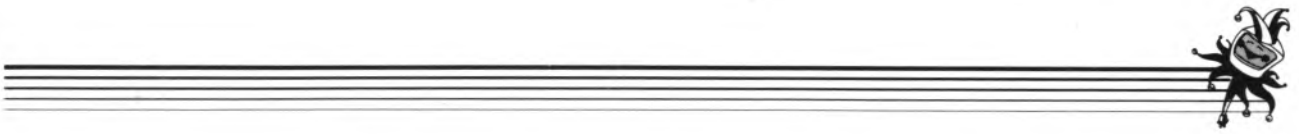
Stratego . . . . . **$49.95/$27.96**

One of the few games that's better on the computer screen than on the board. Lots of variations on how to play the game. five levels of play and several different colored boards for those of you who have color machines.

Accolade, 550 S. Winchester Blvd., Suite 200. San Jose, CA 95128; 408/985-1700, Fax: 408/246-0885

SimEarth . . . . . **$69.95/$46.95**

This does for planets what SimCity did for city planning. It's fun and you actually learn something neat. The simulations range from terraforming Mars and Venus to following a planet that you have created from birth to death.

Maxis, 1042 Country Club Drive, Suite C, Moraga, CA 94556; 415/376-6434, Fax: 415/376-1823

HyperCard Stacks

HyperGlot ..... **$29.95 to $149**

This is the easy way to learn another language. These stacks have high quality digitized sound recorded by native speakers. There are series of stacks for Spanish, Russian, German, French, Italian, and Japanese.

The HyperGlot Software Company, 505 Forest Hills Blvd., Knoxville, TN 37919; 615/558-8270, 800/726-5087, FAX: 615/588-6569

Kanji Exercises No. 1 ..... **$65**

Japanese language is hard to learn, but the graphics and sound in this stack can be a big help. Self-paced and well worth the money if you are going to Japan.

Anonae Software, P.O. Box 7629, Berkeley, CA 94707; 415/527-8006

VeZot HaTorah **$39.95**

A tutorial on the Torah with digitized sound and great graphics. Fun and educational.

Davka, 845 North Michigan Avenue, Suite 843, Chicago, IL 60611; 312/944-4070, 800/621-8227 (sales), FAX: 312/787-7865

Culture ..... **$135/$129**

3,700 years of western culture in five megabytes — unfortunately, not including the 20th century, which is expected to be included in a gigantic and much costlier version sometime later this year. You'll feel the limitations, but you'll appreciate what's there. Taken from the essays of wildly popular NYU professor, Walter Reinhold.

Cultural Resources, 7 Little Falls Way, Scotch Plains, NJ 07076; 201/232-4333

TidBITS ..... **Free (on BMUG BBS)**

A nice way to catch up on news and rumors in the Mac domain, if you have access to their weekly stack issues.

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

Kids Can Save the Earth ..... **$Free (BMUG disk: Hyper Education 60)**

This six-disk set by Amanda (Inigo's Mom) Goodenough, Karen Rall, and Eric Rall, Jr. is a great way to get into the ecology movement — via HyperCard. It's fun too.

BMUG, 1442A Walnut St., #62, Berkeley, CA 94709-1496; 415/549-BMUG, FAX: 415/849-9026

MAGAZINES

Disclaimer: A MacWEEK employee serves on the BMUG board of directors and a number of BMUG members are associated with MacWEEK.

MacWEEK . . . . . $75 per year/free to qualified subscribers

This is the one magazine that is worth lying to get, or just pay the $75 for it and stop worrying. It's generally first with the hottest Mac news and rumors. A must for any well informed mac owner's karma.

Customer Service Department, MacWEEK, P.O. Box 5821, Cherry Hill, NJ 08034; 609/428-5000

Macworld . . . . . $30/$24 per year/Free to qualified subscribers
$60/$37.90 for two years

The only Mac magazine to have a consumer column. For the moment, *Macworld* is the one Mac publication that seems to have its finger on the things that concern most Mac owners.

PCW Communications, Subscriber Services Dept., P.O. Box 54529, Boulder, CO 80322-4529; 800/525-0643, 303/447-9330

MacUser . . . . . $35.40/$19.97 per year
$70.80/$35.40 for two years

MacUser has improved over the last six months, almost to the point of being a different magazine. Its Testing Lab reports are done well and they now tell you what products are great and which are dogs. The reviews have improved as well, as have the covers.

MacUser, P.O. Box 56986, Boulder, CO 80321-6986; 303/447-9330, 303/447-9330 (subscriptions), 415/378-5610 (reader support), FAX: 415/378-5675

MicroTimes . . . . . Free if you live in the right places
Otherwise, third class mail: $24 per year
first class mail: $50 per year
airmail overseas: $160 per year
sample issues: $2 ($4 overseas)

A general computer magazine that runs about 230, 8-inch by 16-inch pages full of information every month. It covers the Macintosh world pretty well with several columns, including David Morgenstern's who writes about the Mac world according to BMUG, as well as news and reviews. Even John Dvorak has a column here.

BAM Publications, 5951 Canning Street, Oakland, CA 94609; 415/652-3810, FAX: 415/652-4618

Newsletters

The Weigand Report . . . . . **$65 for 8 issues**
$115 for 16 issues
$145 for 24 issues

The newsletter for desktop publishers who want to know how to really improve their skills. It shows how to do all those fancy tricks from expert graphic designers in an easily understood fashion. (You can also find C.J. on America Online)

The Weigand Report, P.O. Box 647, Gales Ferry, CT 06335

University MicroNews **$20**

University MicroNews is filled with some of the most detailed software evaluations and comparisons in the world. It is academic in its spare layout, and in its willingness to surgically dissect the operation and design of programs. Michael Scriven, its editor, spends half his year in Marin and half in Australia (nice job).

Edge Press, P.O. Box 69, Point Reyes, CA 94956

MacInfo . . . . . **$120 per year**
$39 for one issue

Have you ever wanted to find an article that you read, but can't remember where, when you don't have hours to go looking for it? Now you can find it in mere seconds, or at most mere minutes, in this reference database for the Macintosh world as expressed in the pages of *MacUser, MacWEEK,* and *Macworld.* The starter pack gets you 2,800 references and the subscription gets you monthly updates. You need the full *EndNote* to merge months together.

Disclaimer: The creator of MacInfo is a past member of the BMUG board of directors.

Niles and Associates, 2000 Hearst, Suite 200, Berkeley, CA 94709; 415/655-6666

Books

Macintosh Family Hardware Reference . . . . . **$26.95/$21.56**

The place to look for info on the life expectancy of the lithium battery in your Mac II. Doesn't include the latest machines or field updates (you need to get the new version for that information), but is an excellent basic reference for technical users. The new soft bound version is handy, but the cover makes us run for the hills.

Apple Computer in conjunction with Addison-Wesley

Stupid Mac Tricks . . . . . **$19.95/$15.96**

by Bob Levitus

BMUG should've come out with this first. Clever, funny, and most of the stuff actually works! This should be on everyone's shelf. . . just so ya can grab it and escape from whatever *real* work you're doing and just relax. It even comes with a *Stupid Mac Tricks* disk!

Addison-Wesley Publishing

The Macintosh Way **$19.95**

by Guy Kawasaki

The way of the Mac...all under one cover. Every marketing person should read this (especially to find out how to act when presenting at BMUG meetings). A very fun read.

Scott, Foresman and Company

The Mac is not a typewriter **$9.95**
A style manual for creating professional-level type on your Macintosh

by Robin Williams

If you use your Mac and print a page you need this book! It sets forth common-sense guidelines for how to make your printed material look professional. This is the book BMUG uses to set forth its style guidelines. And remember, even though this book is getting *very* wide exposure, you read about it here first!

Peachpit Press, 1085 Keith Ave., Berkeley, CA 94709; 415/527-8555

The Macintosh Programming Primer **$25.95**

by Dave Mark and Cartwright Reed

The best, and perhaps the only, programming book for using Symantec's THINK C, this is also a must-read for any Mac programmer using C. It shows you how to go about making a Mac application and how to use the ToolBox. Much better than the manual.

Addison-Wesley Publishing

The Cuckoo's Egg **$19.95**

by Clifford Stoll

The book's a lot of fun, a great adventure, a true story — tracking a hacker who turned out to be a spy — and explains words like UNIX and Usenet, and the overall structure of telecommunications networks in ways that absolutely everybody can understand. Also deciphers terms like "the F Entity" (FBI), "the Northern Entity" (NSA), and "spooks" (CIA) while revealing the fact that astronomers argue over how much gravity bends their telescopes. Real spy stuff and there's even a guy from the CIA named Teejay.

Doubleday

Dealers

ComputerWare

One of the best places to shop for Mac things, especially since they opened stores outside Palo Alto (to get one in Berkeley they bought out one of our previous favorites: MacOrchard). The staff is fair and friendly. It is the only Mac store we know of that has given a $1,700 refund for a software product just because the buyer wasn't satisfied.

Main store: 490 California Street, Palo Alto, CA 94306; 415/323-7559, 800/326-8565 (Corporate orders), FAX: 415/323-5341

Berkeley store: 1928 Shattuck Avenue, Berkeley, CA 94704; 415/649-2100

MACadam

A new and service-oriented Mac-only store with some of the most informed Macintosh people around. A good place to go and check things out, you can even buy BMUG disks there.

1062 Folsom, San Francisco, CA 94103; 415/863-6222, FAX: 415/836-6498

M.A.C. (Modern Accessories for Computers)

Probably the lowest average price for Mac applications and peripherals in the country. They have a policy of beating any advertised price, and they do it.

2156A University, Berkeley, CA 94704; 415/644-0516, 800/282-2622, FAX: 415/644-0584

Pre-Owned Electronics

Ever wanted to build your own Mac? Or wanted an extra flyback transformer? This is the place to go. They have the largest assortment of Apple parts we know of outside of Apple and can get you started on building your own Mac.

30 Clematis Avenue, Waltham, MA 02154; 617/891-6851, 800/274-5343, FAX: 617/819-3556

MacConnection

One of the best of the mail-order companies. The will send any order overnight for $3. They also have a 30-day money back guarantee.

14 Mill Street, Marlow, NH 03456; 800/622-5472, FAX: 603/446-7791 (sales)

Repairs

C.J.S. Systems

After several years of repairing Macs, C.J.S. is still one of the best Mac repair places in the Bay Area. They are very friendly and about the only place that will even attempt to repair your floppy drive. Great when every other place fails, but be prepared...they are not inexpensive.

3051 Adeline Way, Berkeley, CA 94703; 415/849-3730

M.A.C. (Modern Accessories for Computers)

Not as good as C.J.S. for major repairs but for most of the simple repairs (like a blown power supply) they do just fine; they are also not as expensive as C.J.S.

2156A University, Berkeley, CA 94704; 415/644-0516, 800/282-2622, FAX: 415/644-0584

Mirror Technologies

These guys will repair hard disk drives from Jasmine, Apple, GCC, SuperMac, MacBottom cheaper and faster that the companies that original sold them can or will. So, if you have one of those old drives that is out of warranty and needs to be repaired, give 'em a call.

Mirror Technologies, 2644 Patton Road, Roseville, MN 55113; 612/633-2150, FAX: 612/633-3136

MISCELLANEOUS

MacRecorder Sound System . . . . . **$199/$180**

Compact, well-designed, and deceptively easy to use, the MacRecorder (and its bundled *SoundEdit* and *HyperSound* software) is essential for anyone who wants to introduce an aural dimension into their work, particularly with HyperCard, databases (such as *4th Dimension*), or electronic mail packages which support sound.

Farallon Computing, 2000 Powell Street, Suite 600, Emeryville, CA 94608; 415/596-9100 (Main Office), 415/596-9000 (Customer Service), FAX: 415/586-9020

Disclaimer: The current president of Farallon used to be the founder of BMUG.

OmniPage, vers. 2.1 . . . . . **$795/$550**

Caere gives a great demo of this product. For straight-forward pages, it's the fastest and probably the most accurate. On more difficult material, the lack of expert tools is a handicap. Modules are available, including one to improve success with dot matrix printer output and an OCR-customized spelling checker.

Caere, 100 Cooper Court, Los Gatos, CA 95030; 408/395-7000, 800/535-SCAN, FAX: 408/395-1994

Accutext, vers. 1.1 . . . . . **$795/450**

This is usually the choice of experienced OCR users in spite of its glaring deficiency. It doesn't show you the final output on screen. You will have to go to a word processor for that. It reads several European languages, and has excellent expert user tools. It succeeds in maintaining much of the page layout in its output. This fall, a new version is expected with trainability and an integrated text editor.

Xerox Imaging Systems, Datacopy Kurzweil, 535 Oakmead Parkway, Sunnyvale, CA 94086; 408/522-3801, FAX: 408/522-3800

Gifted Technologies

If you want to know the latest on Carpal Tunnel Syndrome, low-level radiation exposure issues, or VDT eye-strain, this place will give you the scoop. They carry many different kinds of ergonomic computing aids and also provide consultation, surveys, installation and research.

110 Park Place, Millbrae, CA 94030; 415/873-0718

Wrist Pad . . . . . **$17.95/$12.95**

Ever feel a strange tingling sensation in your hands...and not because of something you did intentionally? Well, relief is here at last, this is the most commonsensical item we've seen in ages! Hey, it even makes playing Solarian fun again.

Silicon Sports, 1180 Sherman Ave., Menlo Park, CA 94025, 415/863-6222, 800/843-2972

Mac UPS **$249.95**

This small uninterruptable power supply (UPS, not the shipping service) is also a power filter that will keep a Mac and hard disk going for 7 to 10 minutes after the power goes off — giving you time to shut down properly.

Statpower, 717 Simundson Drive, Suite 170, Point Roberts, WA 98281; 604/420-1585

BMUG Controversial Choices

Best College Football Team

The California Golden Bears, who for the first time in years, let us not only hope and pray, but also give us a chance to celebrate by making it to the Copper Bowl in Tucson, AZ. Although this victory was somewhat tainted by the controversy in Arizona over the Martin Luther King, Jr. holiday.

Best Television Program

Twin Peaks, by far the most-talked-about television show on the BMUG BBS. We figure if Agent Cooper had a Mac, he would have figured it out in the first two episodes. Thank goodness computing hasn't found its way up to the Pacific Northwest. Then again, Lucy Moran and Sheriff Harry S. Truman have Macs, and it doesn't seem to have helped them much.

Best Online Service

America Online, for its friendly people and trend-setting low prices. They give you almost everything you'd ask for in a Macintosh online service, and more. BMUG has a forum there, too, so if you live farther away from Berkeley than you'd like, this is a great way to keep up with the news. To sign up, call 1-800-227-6364.

Most Annoyingly Ubiquitous Information Service

Prodigy's price is now $12.95 per month, isn't it?

Best User Group Meeting

BMUG West, hands down. A monthly series of meetings at the Exploratorium's McBean Theater in San Francisco. It's a kinder, gentler BMUG meeting, where everybody knows your name and they're always glad you came. And remember, since the Theater only seats about 125 people, the odds are better at winning one of the many free raffle prizes.

Best BBS

Our pick for the best BBS is Shockwave Rider, hosted by Eric Larson in New York.

The BMUG BBS has been having a few too many problems this year. With a new CPU and a couple of new modems, hopefully this year we'll see a vast improvement.

Best Color Computer

The Macintosh IIfx. It's not just fast, it's wicked fast, as the Apple T-shirts say. Also wickedly expensive, but you definitely get what you pay for. When the '040 NeXT machines see the light of day, maybe they'll hold a candle. Then again, maybe not.

Best Food In Berkeley After 10 O'clock At Night

Taiwan Restaurant on University. It's where BMUG people eat dinner when no other restaurant is open. The hot and sour soup is excellent, and you can't go wrong with whatever you pick from the menu.

Best Children's Store

Such a Business, for those up-and-coming BMUG babies. 5533 College Ave., Oakland, CA; 415/653-0593

Best Coffee

Graffeo Dark, from the Graffeo Brothers in North Beach, San Francisco. It's so good, it might someday replace Jolt as the nerd's choice source for caffeine.

Best Ribs

Flint's Barbecue in Oakland will give you one of the heartiest meals anywhere. You can smell the sauce from here to Chicago, but it's worth it. Flint's BBQ, 6609 Shattuck Ave., Oakland, CA; 415/655-6641

Best Pizza in Berkeley

Zachary's Chicago Pizza. Once you've had Zach's, you need to go back. The Nino's Hearts-of-Palm pizza is worth mentioning as well.

Zachary's, 1853 Solano Ave., Berkeley, CA

Nino's Brazilian Restaurant & Pizzeria, 1916 Martin Luther King, Jr. Way (near University), Berkeley, CA

Tips & Tricks
from the BMUG Helpline

by Betsy Kennedy

As you probably know, one of BMUGs important services for its members is the BMUG helpline. You can call the helpline anytime at 415/849-HELP to talk to a BMUG volunteer or staff member. You are most likely to be connected directly with someone at BMUG if you call between 9am and 5pm PST, but any time you call and cannot be helped immediately you can leave a message and you will be called back.

Following are almost 100 of the questions which are commonly asked on the helpline, complete with simple and concise answers. The questions\answers fall into eight categories:

Microsoft Word
Floppy Disks
Imagewriter II
Filemaker Pro
BMUG Shareware
Video
Mac to IBM
Miscellaneous Macintosh

Besides the eight topics covered here, the BMUG helpline also has experts who solve problems in 4th Dimension, Excel, HyperCard, PageMaker, and many other subjects.

Microsoft Word

I have a 300 page document created in MS Word 4.0 and I am trying to print to an Imagewriter. The Imagewriter prints the first 120 pages, then stops. What's going on here?

Your problem stems from the fact that the Imagewriter driver can only print 128 pages at a time. To print all three hundred pages, you will need to print your document in three lots of a hundred or so pages each. To do this:

1. Choose **Print...** from the File Menu
2. When the **Print...** dialog box appears, specify the range you wish to print by typing the page number of the first page to be printed in the *From:* box and the page number the last page to be printed in the *To:* box. When you hit the *OK* button, Word will now print the entire range you have specified.
3. Repeat steps one and two as often as necessary until your entire document has been printed.

I am doing a print merge in Word 4.0. When I try to print, I get an error message. What's going on?

There could be several things which are causing you problems when you try to do your print merge. All of these problems have to do

with the number of fields or records in your data document. For those of you who are new to print merging, a data document is a document which contains raw data which can be used to "fill in the blanks" of another Microsoft Word document. In a data document used to hold data about a company's customers, a field is a specific piece of data in the data document, such as a customer's name and address, and a record would be the complete set of all fields which were relevant to a particular customer. Some common problems which occur during print merges are:

1. One of the records in your data document is missing a tab or comma. All of the fields in a record must be separated from each other by either tabs or commas. If you do not have a tab or comma separating each and every field in a record, Word will reject it.
2. If you are using optional fields in your data document, make sure the records that do not contain data still have a comma or tab marking the place where the field's data should go. Word will reject a record without enough separators even if there is no data in the record to be separated.
3. Returns should be used at the end of every record, but only at the end of a record. If you put a return in the middle of a record, Word will consider everything up to first return to be a complete record. Since this record will then have too few fields in it, Word will reject it.
4. If you have an extra return or page break in the address document, Word will also have problems. Word will think the extra return indicates the presence of another record, and will give an error message when it cannot find any fields for this record.
5. If you are merging to a new document, Word 4.0 will not allow your merged document to exceed 128 pages in length. If you are merging straight to the printer, this limitation does not exist.

I have Microsoft Word and I am printing to an Imagewriter. I set the margin at 6.5 inches, but it displays at 6.0 inches. How can I correct this?

Turn on the Tall Adjusted option in the print menu box.

The Tall Adjusted feature is designed to allow printing of graphics in correct proportion, and to print text as it would print on the LaserWriter. When Tall Adjusted is used, more of the ruler will show on the screen and the text will also print slightly wider on the Imagewriter. Because of this difference, 6.5 inches of text printed on the LaserWriter corresponds to 6 inches of text printed on the ImageWriter.

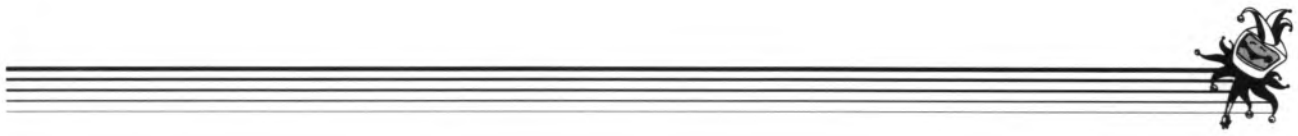
I'm using MS Word 4 and am trying to print to an ImageWriter in Draft quality, but nothing is printing out. I have a Mac Plus and I am using System 3.2, Finder 5.3, ImageWriter 2.3. What's wrong?

Word 4.0 is not compatible with your System software. To run Microsoft Word, you should use Imagewriter driver version 2.7 and System software 6.0.5.

I am printing an Word 4 document on an ImageWriter II in *Draft* mode. The text is printing but none of the graphics, why?

In order to print more quickly, the Imagewriter does not print graphics from Word when you print in *Draft* mode. To print your graphics from Word, you will need to use either *Faster* or *Best* print quality.

I put a page number in Word using Page Preview, how do I remove it?

1. Go back to Page Preview
2. Click the Margins icon
3. Drag the page number off the page into the gray area surrounding the document.
4. Click in the gray area to verify your action.

How can I print an envelope from MS Word to an Apple LaserWriter?

To print an envelope without a return address:

1. Choose Page Setup... command from the File Menu. If you are using Word 4.0 or above, you will now need to click on the *Document* button.
2. Adjust your margins to the following:
   Top: .5 Left: .5
   Bottom: 2.2 Right: 2.0
3. Change the page Orientation to *Wide*, and select *US Letter* as the paper size.
4. Go back to your document and type in your address as you wish to have it appear on the envelope. The return address should be flush with your left margin, the recipient's address should start 12 single-spaced lines from the top margin and four inches from the left margin.
5 Choose Print from the File menu and select the *Manual Feed* option.
6. Feed the envelopes through the LaserWriter's manual-feed slot. The Laserwriter adjusts manually-fed paper by forcing it to the the right side of the manual-feed slot against the manual-feed guide. When feeding envelopes into the Laserwriter, place a small amount of of pressure on the envelope. This ensures that the paper feed pulls the paper smoothly and doesn't jam.

How do you print envelopes to an HP DeskWriter from MS Word?

1. Choose **Page Setup**... from the File Menu.
2. Choose the *Envelope* paper size from the **Page Setup**... dialog box.
3. Make the page orientation vertical.
4. Press the Select button on the printer each time you feed an envelope through.
5. Click on the *Document* button and set the margins as follows:
   Top = .306 in. Left =.306 in.
   Bottom = 1.00 in. Right = 1.00 in.
6. Type in the return address.
7. Press the Return key five times. *Note: this assumes your envelope uses single-spaced type.*
8. Move the left indent marker on the ruler over to the 3.5-inch marker.
9. Type in the mailing address.
10. Insert the envelope into the printer face down, sliding it under the feed wings until it touches the printer wheels. The DeskWriter can print only on #10 or DL size envelopes.
11. Select Print from the File menu and press the Select button on the printer when prompted to do so by the printer.

How do I print envelopes in Word 4.0 using an ImageWriter?

1. Choose **Page Setup**... from the File Menu.
2. Choose the *US Letter* paper size from the **Page Setup**... dialog box.
3. Set the page orientation to *Wide*.
5. Click on the *Document* button and set the margins as follows:
   Top Margin: 6 in.
   Left Margin: 3.5 in.
   Right Margin: 1 in.
   Bottom Margin: 1 in.
2. Choose **Print**... from the File menu and select *Manual*.
3. Put the envelope face down in the Imagewriter. Make sure the envelope flap folded out toward the right side of the printer as you are facing the printer. The left edge of the envelope should line up with the manual-feed guide.
4. Press the form-feed button on the printer to feed the envelope into the printer.

How does one import a graphic from Adobe Illustrator into MS Word 4.0?

1. While in Illustrator, select the graphic.
2. Press the Option key and choose **Copy** from the Edit menu.
3. Open your Word document and position your cursor where you want the graphic to be placed.

4. Select **Paste** from the Edit menu.

This procedure also works for transferring documents from Adobe Illustrator to Microsoft File, Power Point, Microsoft Works and Microsoft Write.

I am creating a 400 page document in MS Word 3.2. Every time I perform a sort or try to compile table of contents, I get an "Out of Memory" error message. I am working on a Mac IIcx with five megs of RAM and I have no INITs in my system. Why am I getting this error?

Powerful as it is, Microsoft Word 3.2 still cannot access more than one Megabyte of RAM, no matter how much RAM is actually available to it. Thus, if you ask it to do an operation which requires more than 1M RAM, you will always run out of memory.

To work around this problem, split your document into smaller documents of 100 pages or less. In order to keep your page numbering consistent across the document, you can use the *Start Page numbers at:* option from the **Page Setup...** dialog box to start each document's automatic page numbering where the previous document left off.

Can I search for non-alphanumeric characters using the Find... and Change... commands from the Search Menu?

There are a variety of non-alphanumeric characters which you can search for when using the **Find...** and **Change...** commands. To find most of these characters, you will need to type a caret, "^" by typing Shift-6.

Type...	To Find...
^?	A question mark
^w	A white space
^t	A tab
^p	A paragraph mark
^n	A forced line break
^d	A section break
^^	A single caret — "^"
^\	A formula character
^1	A graphic
^5	A footnote reference
?	An unspecified character in a string. For example, a search string of *m?n* would match min, man, men, mtn, or mcn.
^#	A character with an ASCII value of #. Thus a search string of *^67hurch* is really the same as a search string of *Church*, since the ASCII value of a capital C is 67.

How can I find the ASCII code of a character?

The ASCII code of a character is found by selecting the character and pressing Command-Option-Q. The ASCII code number for the character you have selected will appear in the lower left-hand corner of the screen where the page number usually is.

Can TIFF graphics be imported to MS Word 4.0?

No, TIFF files must be converted to PICT format before they can be imported into Word. Canvas and DeskPaint are two software programs that will allow you to convert a TIFF file to PICT format.

There are several "Word Temp" files in my system folder. What are these files and what are they used for?

These files are temporary files which are created as you work within Microsoft Word. Unless your machine crashes while you are working in Word, Word should automatically delete these files when you quit. Needless to say, this doesn't always happen. If you do experience a crash while working in Word, these files may contain valuable data which would otherwise have been lost to you. To access these files from within Word:

1. Press the Shift key.
2. With the Shift key depressed, choose the **Open...** command from the File menu.
3. Use the dialog box that appears to open a Word Temp file from your System Folder.

4. Repeat steps one, two, and three until you have either found the data which you had lost or you exhaust your supply of Word Temp files.

When I tried to use the spell checker in Microsoft Word I got the message, "Can't locate the dictionary." I had put the dictionary in the MS Word folder, what's wrong?

When you get the message, "Can't open the dictionary," Word should give you the standard **Open...** dialog box. You should use this dialog box to locate and open Word's dictionary. After you have done this the first time, Word will remember where the dictionary is the next time you need to do a spell check, so you will not see this error message again.

I am trying to print three columns of text in the LaserWriter with the top and bottom margins set for one inch. Why does the printer keep creating a fourth, blank column?

1. You need to reduce your margins. The last line of a column sometimes ends up too close to the margin and forces an extra column to be created even though there is no text to fill the column. All margins should be set at half an inch, 0.5.
2. If you *must* use one inch margins, insert a section break between each column of records on your main document. Be sure and select *New Column* for Section Start in the Section dialog box.

When I try to use Print Monitor to handle printing from Word to my printer, it doesn't work. What's wrong?

There are things that must be true in order for you to use Print Monitor:

1. In order to use Print Monitor, you must be printing to a printer which uses the Apple LaserWriter printer driver. Print Monitor will not work with other printers such as the Apple ImageWriter or HP DeskJet.
2. Print Monitor must be turned on in order to work. To turn Print Monitor on or off, go the the Chooser and select the LaserWriter icon. After you have selected the LaserWriter icon, two radio buttons will be enabled which will let you turn background printing *On* and *Off*.
3. Print Monitor only works under MultiFinder.
4. Print Monitor needs Backgrounder in the System Folder in order to function.
5. Your version of Print Monitor must be compatible with the System software you are using. For most Macs, you should be using System 6.0.5 and Print Monitor version 1.3. If you have questions about which version of Print Monitor to use with other versions of the System, call the BMUG helpline. Disks with the current version of the System, printer drivers, and Print Monitor are all available from BMUG.

How can I do a *Select All* in Word?

Microsoft has set aside a special key combination in Word, Option-Command-M, which you can use to select all of the text in a document. To select an entire word document, just depress these three keys in order.

What is RTF?

RTF stands for *Rich Text Format*. This is a format created by Microsoft which allows users to transfer documents between various Microsoft applications on the Mac and PC without loss of formatting.

I have a problem when using Pagemaker 3.2 and MS Word 4.0 with Laserwriter 6.0. When I print with Palatino Bold, the character appears to print one point smaller than Palatino Plain. What's the cause of this?

Palatino Bold prints one dot — not point size — or about 1/300 inch smaller than plain text Palatino. This problem is inherent

in the font, it has nothing to do with the applications you are using.

Floppy Disk Questions

When I inserted my disk, I got an error message saying, "This disk needs minor repairs." What should I do?

This message means that your disk's Desktop file is corrupted. The Desktop file is an invisible file that contains an index of information about the files on its disk including icons, type IDs and data for the Get Info box. Here are some things you can do if one of your disk's Desktop file becomes corrupted:

1. Rebuild the Desktop. To do this, hold down the Option and Command keys while you insert your disk. You will then get an alert asking if you want to rebuild the disk's Desktop file. To rebuild the Desktop file on a hard disk, restart your Mac while holding down the Option and Command keys — you will get the same alert.
2. Replace the finder. The Desktop file is created by the finder, so if the finder is corrupted the Desktop file may not function properly.
3. If the disk has problems so severe that the Desktop file cannot repaired, use a program such DiskTools to rename the Desktop file. The Finder will then create a new and undamaged Desktop file.

When I inserted my disk, I got an error message saying, "This disk is damaged. Do you want to initialize it?" What does this mean?

This means the disk has damaged data on it, usually in its boot blocks or disk directory. Use SUM or Norton Utilities to recover the files from the disk, then re-format the disk or throw it away.

When I inserted my disk, I got an error message saying, "The disk is damaged, do you want to initialize it?" What should I do?

This message usually indicates that the disk's Volume Directory is damaged. Try using SUM or Norton Utilities to recover the files from this disk. If you do successfully recover the disk, you should re-initialize it or throw it away after you have made backup copies of your files.

When I inserted my disk, I got an error message saying, "This disk is unreadable: do you want to initialize it?" What does this mean?

This message could mean any of several things:

1. The disk's directory has been damaged.
2. There are bad sectors on the disk. The data could be be damaged.
3. If this is a floppy disk, your floppy disk drive might be out of out of alignment. Try inserting another disk to see if the problem stems from the disk or from the disk drive. If the machine successfully reads the second disk, try the first disk again to verify that the disk was indeed the problem.

While trying to initialize a disk, I got the error message, "Initialization failed." What should I do?

1. Make sure the disk is not locked.
2. Try a another disk — you need to discover if the problem is with the floppy disk or the disk drive. If another disk gives you same message, your disk drive is probably is damaged or out of alignment. If the problem occurs with only one floppy, the media on that disk is damaged — you should throw it away or return it. Disks can become damaged for a variety of reasons: dust particles, magnetic fields, physical damage, or just bad karma.

While I was copying a disk, I got a message saying, "Can't copy file — disk error." What does this mean?

There was a problem with either the disk you were copying from or the disk you were copying to. To further diagnose the problem you should take the disk you were copying from, and try to copy its files to another disk. If everything copies, then the problem was the original disk you were copying to. If not, then the problem was with the disk you were copying from. If the problem was with the disk you were copying from, you should try:

1. Rebuilding the Desktop on the source disk- the problem might be a damaged Desktop file.
2. Using SAM or Norton Utilities to recover the problem file — the problem might be bad sectors or corrupted boot blocks.

If the problem was on the disk you were copying to, you should copy all valuable files off of that disk, then reformat it or throw it away.

I have a Mac Plus and a 20 meg external HD. Does it matter whether I turn on the Mac first or the HD first?

You need to turn on the hard drive first, wait ten seconds, and then turn on your Mac.

How can I eject a floppy disk that won't eject when I shut down my machine?

1. Restart while holding the mouse button down, This forces the Mac to eject all disks from its disk drives on startup.
2. If that doesn't work, click Command-Shift-1 if the disk is in you upper drive, Command-Shift-2 if floppy is in lower drive. On a Mac Plus, Command-Shift-1 ejects a disk in your internal drive and Command-Shift-2 will eject a disk in your external drive.
3. If this doesn't work, the problem might be that the release lever inside the disk drive is stuck. In this case, you need to open the disk drive and unhook it. If you aren't familiar with Mac hardware, get an experienced person to help you with this.

I spilled some soda on my floppy disk — is there away I can clean the media and make it usable again?

You can try, but this is a risky procedure, since you don't want whatever was on your disk to get on the heads of your disk drive. Because of the inherent risk of such a procedure, you should put a "dirty" disk into your drive only if the data on it are really valuable and only after you have cleaned it using the techniques described below:

1. Use distilled water to remove soda, coffee, or any water soluble products that have spilled on to the media.
2. To remove oil-based contaminations, such as fingerprints, use ethyl alcohol. Alcohol evaporates and leaves very little residue.
3. Do not insert the disk into your drive until the water or alcohol that you used to clean it has completely evaporated.

How many sectors are there on a floppy disk?

1. A single sided disk contains 800 sectors organized in 80 tracks.
2. A double sided disk contains 1600 sectors organized in 160 tracks, 80 per side.

Do the diskettes I use on the Mac Plus work on the Mac IIci?

Sure, 800K diskettes work fine in a Mac IIci's SuperDrive. Be forewarned, though, The Mac IIci can write to 1.44M High Density disks which will not work on the 800K floppy disk drives in the Plus. All of Apple's new machines can work with all of the disks used on older Macs, but some of the older machines cannot handle the newer formats.

What does a RAM disk do?

A RAM disk is a piece of software which tricks the Mac into thinking that a portion of your machine's RAM is actually a physical

disk. You can store files on this RAM disk just as you would on a floppy disk or hard disk, but anything you store on a RAM disk will disappear when you turn the Mac off. A RAM disk really comes in handy if you have only one disk drive and don't want to do a lot of disk swapping. RAM disks are also useful since your machine can access its RAM much more quickly than it can access a disk, so disk intensive operations are much faster when you use a RAM disk.

There are also some hardware RAM disks which store the information you put on them in RAM chips instead of a magnetic medium. These disks are much faster than a normal hard disk, but they are also much more expensive. The advantage of a hardware RAM disk is that they usually have some provision for saving the files that you copy to onto them so that the files are not lost after you turn your computer off.

Imagewriter Problems

When printing on an ImageWriter II, on the first line of each page the letters are compressed. How can I fix this?

Your platen gears are out of alignment. To fix this, turn the printer off, wait a few minutes, and then turn it on again. This makes the ImageWriter perform its power-on initialization cycle which activates the Line Feed motor. This will force the platen gear to realign itself.

My ImageWriter is printing gibberish, any ideas?

1. Your ImageWriter dip switches are set incorrectly. See your ImageWriter manual for the proper settings.
2. Your ImageWriter driver is corrupted. Try replacing the ImageWriter file in your System Folder and see what happens.
3. You have the wrong printer cable. Try exchanging your cable and see if this solves the problem.

My Imagewriter keeps pulling paper about a 1/4 of an in inch to high. This is messing up the top and bottom margins.

On an ImageWriter II, this means that the Dip switch is set incorrectly: set switches 1 and 5 to open.

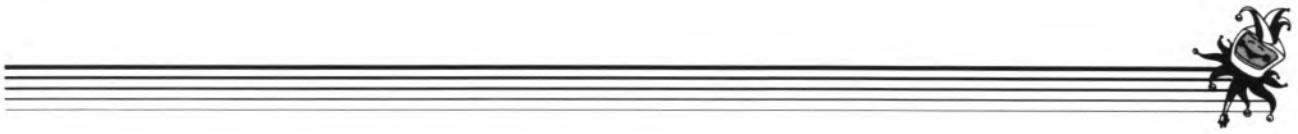
My Error Lamp blinks even though there isn't a paper jam. What's going on?

1. Your DIP switches may be improperly set.
2. The magnet on the cover may have fallen off.

Whenever I use pin feed, my ImageWriter II jams. What can I do?

1. Make sure the paper is not catching on the back of the paper guide.
2. You might be using the wrong paper. Use 15 lb. weight or heaver paper.

Sometimes my paper gets stuck and folds between the paper blade and paper bail. What can I do to stop this?

1. The platen release lever is not in the correct position. To fix this, make sure that the platen is not in friction feed mode.
2. Something is blocking the paper the paper path. A sticky label or a piece paper may have gotten stuck on the metal blade located under the platen.
3. Sometimes paper which has been left in the printer too long develops a permanent curl from being curled around the ImageWriter's roller. If this is the case, simply insert a new, uncurled sheet.
4. Your paper guide may be defective. If this is the case, you will need to replace the paper guide.
5. The tractor assembly may be misaligned. This will cause the paper to feed improperly.

When inserting a piece of paper, the left hand side under the platen seems tighter than the right side. Why is this?

This problem occurs because the "paper out" sensor is interfering with the paper path. To fix this, move the "paper out" sensor lower in the platen cradle, but still high enough to detect "paper out."

Can I use Print Monitor with my ImageWriter?

No, you will have to use some other print spooler program, such as SuperSpool.

Filemaker Pro Questions

How can I convert my Filemaker II files to Filemaker Pro?

1. Put all your Filemaker II files into a folder with the Filemaker Pro application.
2. Highlight the folder.
3. Choose the **Select All** command from the Edit menu.
4. Choose **Open Folder** from the File menu.

This will cause the application to open, and all the files will open one-by-one in Filemaker Pro.

How can I create labels in Filemaker Pro?

1. Choose the **Layout** command from the Select menu.
2. Choose the **New Layout** command from the Edit menu.
3. Click the *Label Layout* button.
4. Set the label size and specifications using the dialog box which appears.
5. Select the fields you want in the label.
6. Click on the *OK* button. Filemaker will then creates a layout for you which meets the specifications you have given it. The left label in this layout is a prototype of what all the labels will look like; all of the others labels should be appear to be greyed out.
7. If you will be printing to a Laserwriter, you need to move the header line so that it the vertical distance from top of label sheet is equal to the vertical distance to the top of the first label. You can use the T-Square tool to help you make this measurement.

How can you print page numbers in Filemaker Pro?

To insert a page number in a FileMaker layout, type ## in a text object. When your layout prints, the ## symbols the letters will be replaced with the appropriate page number.

Are there ways to print a range of pages or records in Filemaker Pro?

Sure. To print a specific set of pages or Records, choose the **Print...** command from the File menu. You will then be given five choices for printing:

1. The current selection of records.
2. The current record.
3. A blank record.
4. Field definitions.
5. A specific block of pages.

How can I export text from Filemaker to Microsoft Word or Excel?

1. Do a **Find** to locate the records you want to transfer. Choose **Find All** if you want to export all of the records in your database.
2. Sort the resulting selection if you want your records to be in a particular order when you import them into another program.
3 Choose the **Export** command from the File menu.
4. Use the dialog box which will then appear to specify the name and location of your export file.
5. Click on file type to indicate that the output file should be in SYLK format.
6. Click on the *New* button.

7. Choose the fields you want to export and the order you want them in.
8. Click on the *OK* button.

I have about 500 records in a Microsoft Word file. How can I import them into Filemaker?

1. In Word, save the file as a tab delimited text file.
2 Open Filemaker.
3. Click on the *New* button to create a new file.
4. Define the the fields you want to import data into and click on the *OK* button.
5. You should now be in the Field Order window where you should define the order you want the fields to be in.
6. Click on the *Import* button.
7. Click on the name of the text file be imported.
8. Choose the *Tab Separated* file type option
9. Click on the *Open* button.

Shareware Questions

Will StuffIt Classic open files compressed in StuffIt Deluxe?

No, but StuffIt Deluxe will open files compressed in StuffIt Classic. StuffIt 1.6 is available on BMUG Telecom Disk 2, StuffIt Deluxe is a commercial program.

I am trying to install SuperClock into my computer. I put the SuperClock Folder in the System Folder and restarted my machine, but nothing happened. What did I do wrong?

The SuperClock application needs to be placed in the root of the System Folder, not in a folder in the System Folder. SuperClock is available on BMUG Business Disk 6.

Is there a program that will change the default font in all applications?

Try using AP font from BMUG Utilities Disk 10. This cdev will allow you to change the System default fonts to whatever fonts you wish.

My shareware version of Boomerang shows up with an X thru it as the system is booting, yet my other INITs work fine. What's wrong?

For some reason, Boomerang is not loading, This may be because:
1. You don't have enough memory.
2. There is an INIT conflict.

If you think the problem is an INIT conflict, try removing your other INITs and cdevs and see if Boomerang will load when you boot. If Boomerang then works correctly, try putting your other INITs and cdevs back one by one, restarting after you replace each file. When Boomerang fails to load, you know that the last cdev/INIT you added caused the conflict. To automate this process, you can use INIT cdev 3.0, available on BMUG Utilities Disk 13. Boomerang is also available on BMUG Utilities Disk 13.

I have a IIsi running System 6.0.7. Why won't SoundMaster work on my machine?

Systems 6.0.7 has a new version of the sound manager designed to work on the IIsi and the LC. The current version of SoundMaster does not work with this version of the System.

Video Questions

I will be installing a 24-bit color card into my Mac IIci. How do I disable the the internal video?

The Mac IIci will disable its internal video if you leave SIMM Bank A empty and do not connect a monitor to the built-in video port.

Will my IIci run faster if I use a color card rather than relying on the built in video?

That depends on what kind of work you are doing. High computation, low-graphic programs run faster with a NuBus video card. The reason for this is that the built in video uses the RAM in bank A and therefore slows down anything else that accesses data using that bank.

On the other hand, because of the 10 MHZ limitation of the color card, moving video data through the built-in video is much faster than moving it over a NuBus video card.

I have a 24 bit color card with the 32 bit QuickDraw INIT installed, but I cannot get millions of colors in my Monitors cdev. What should I do?

Get a copy of System 6.0.5 or later, and using the Installer program, install 32-bit QuickDraw. This includes several files:

1. A new General cdev
2. A new Monitors cdev
3. A new 32-bit QuickDraw file
4. A new LaserWriter printer driver, LaserPrep, and Print Monitor.

Whenever I turn up the brightness control on my Mac Plus, the video becomes distorted. What's happening?

This problem might be caused in two ways:

1. You have problems with the capacitors on your analog board.
2. The power supply needs to be adjusted.

If you need this fixed, you should probably take your Mac in to be serviced.

My video screen is black except for a bright white vertical line down the center of the screen. What is going on?

This problem results when your monitor looses its horizontal sweep and there is no longer side to side horizontal movement of the light beam which generates your display. Your monitor needs to be serviced.

Is there a video monitor that gives you the ability to have tear-off menus in all applications?

Radius monitors come with a cdev which allows you to tear-off any menu from any application.

Is there a Two Page Monitor that I can use with my Mac Plus?

The Big Picture by E-Machines is a 17 inch large screen monitor which you can use with a Plus.

When I turn on my Mac Plus, all the screen shows are vertical black and white stripes. What happened?

1. The power supply has shorted out.
2. The horizontal deflection capacitor has shorted out.
3. The flyback transformer is having problems.

If you are not adept with hardware yourself, you will need to take your Mac in for repairs.

When I turned on my Mac SE the monitor stayed completely black. What is going on?

1 You have bad Composite Video and Horizontal Synch wires connecting your the analog board to your logic board.
2. Your flyback transformer has shorted out.
3. Your power supply has died.

Unless you are experienced with electronics, you should probably take the Mac to the repair shop.

File Transfers & Printers

How do you hook up a DOS Machine to an Apple LaserWriter?

If you are using AppleShare PC or a Tops FlashCard with TopsPrint, you can print to the printer over your AppleTalk network. Otherwise, you will need to connect your LaserWriter directly to your PC. Here's how to do so:

1. Plug a null modem cable into the 25 pin port on your LaserWriter and the COM1 port on your PC.
2. Flip the switch on the back of the LaserWriter from AppleTalk to 9600 baud.
3. At your DOS prompt, type *Mode COM1:9600,n,8,1,p* and hit the Enter key. This tells DOS that you will be sending data out of the serial port at 9600 baud, with no parity, 8 data bits and and 1 stop bit.

I have a Mac and an HP LaserJet II. Can I get them to work together?

You can do this one of two ways. First, you can use the MacPrint or JetLink Express printer drivers and a DIN-8/DB25 serial cable to connect your Mac directly to the printer. To do this:

1. Connect the cable to the Mac and the Printer.
2. Click the button on the printer to change the printer interface from parallel to serial printing.
3. Copy your printer driver and fonts into the System Folder.
4. Go to the Chooser and select the printer driver.

Another way to print to the LaserJet II is to upgrade your printer with a Hewlett Packard AppleTalk interface card, PostScript cartridge and RAM upgrade. This is a lot more expensive than the above solutions, but it will allow you to use your LaserJet II over the network and will allow you to use PostScript.

I'm using Excel on the Mac and I want to transfer a file to Lotus on the PC, how?

BMUG recommends using either MacLink or Apple File Exchange to do this transfer. To transfer the file using Apple File Exchange alone, you will need either a SuperDrive or a 5.25" DaynaMac external drive. To do the transfer you should:

1. Use Excel to open the file to be transferred.
2. Choose **Save As...** from the File menu.
3. Click on the WK1 radio control in the **Save As...** dialog box, then click on the *Save* button. You have now saved your file as a Lotus worksheet.
4. Open Apple File Exchange and insert your DOS-formatted disk into the appropriate drive.
5. You can now use Apple File Exchange to copy your worksheet directly to the DOS diskette. This diskette will then be ready for use by your IBM-compatible machine.

To do this transfer using MacLink, you should:

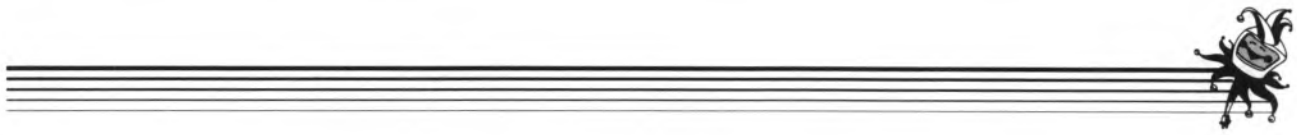
1. Translate your file into Lotus format using Apple File Exchange and the MacLink translator set.
2. Connect the Mac to the PC via the MacLink RS-232 cable.
3. Launch the MacLink communication software on both the PC and Mac.
4. Using the communications software, send the file from the Mac to the PC.

How can I export a chart from Excel to another program?

To export a chart from Excel, you need to save the chart as a PICT file. To do this

1. Click **Copy Chart** form the Edit menu. This saves the chart to the Clipboard.
2. **Paste** the chart into the **Scrapbook** or any application that accepts PICT files.

Can I connect a an Epson LQ to a Mac?

You need Grappler LX by Orange Micro. The Grappler uses special software to translate

Macintosh printing commands into a format appropriate for Epson's Centronics port.

How can I hook up a HP DeskJet to a Mac SE?

You need the Grappler LS, which works with an RS-232 printer cable and the ImageWriter LQ printer driver. This Grappler will work with the Plus, Classic, and SE, translating their printing commands into appropriate printing commands for the HP LaserJet or DeskJet.

I am using MS Word 4.0 and a DeskJet printer. The printer will not print justified text. Why?

Word will not print justified text using Macintosh fonts on the HP DeskJet. To print fully justified text, you will have to use the fonts built into the HP DeskJet printer.

I am moving text from WordPerfect on the PC to Microsoft Word on the Mac using MacLink. Is there way I can do this translation without losing my formatting?

Yes. If your document is formatted correctly, you can the WordPerfect/MS Word translator which is included with MacLink to translate your document for you. This may not work if you have done your indents and text positioning with spaces, however, so be sure to you tabs and returns when preparing a document that will be transferred in this way.

Can I translate 8-bit Mac pictures over to the PC?

Yes, Save them in PICT format on the Mac, then convert them to PCX format using DataViz's MacLink Plus translators. MacLink Plus can also translate PCX files into PICT format, if you want to convert graphic images on the PC for use on the Mac.

I have a file in AppleWorks on an Apple IIe. Can I transfer it to the Macintosh?

You can use Apple File Exchange to transfer this file if you have an Apple 3.5" SuperDrive or a Daynafile 5.25" floppy drive. To do this:

1. Save the AppleWorks file as a ProDOS text file. The file should now have a .TXT file extension.
2. Copy this file onto an Apple II formatted disk.
3. Open Apple File Exchange on the Macintosh.
4. Insert the Apple II disk into the appropriate drive.
5. In Apple File Exchange, select the file you wish to convert and click the *Transfer* button. This should transfer the file into Macintosh text format on your hard disk.

I don't have a SuperDrive on my Macintosh. Is there a way to transfer files between Apple II computers and the Macintosh without using Apple File Exchange?

Yes, you can transfer data through the serial ports. To do this:

1. Connect the serial port on your Apple computer to the modem port on the Macintosh using a serial cable. Both the Apple IIc and Apple IIGS have built in serial ports, but since the Apple IIe does not have a built in serial port, you must have a Super Serial Card installed on your Apple IIe to make this work.
2. If you are using an Apple IIe, set the Super Serial Card jumper to *Modem*.
3. Start up a terminal emulation program on both the Apple II and the Macintosh. If you don't have a terminal emulation program, you can use Access II is a program for the Apple and Termworks or Freeterm for the Macintosh. Termworks and Freeterm are available on BMUG Telecom Disk 2. Make sure that both computers have the same settings for baud rate, data bits, parity, and

file transfer protocols.

4. You can now use the terminal emulation software to send the files back and forth between your Apple II and Macintosh. For each file you wish to transfer, you will need to tell one machine to *receive* a file, and then tell the other machine to *send* the file you with to transfer. The exact details of this process will vary depending on the terminal emulator that you are using, but it shouldn't be difficult to do.

One the Mac side, transferred files will appear with the "generic" icon — a blank sheet of paper with one corner turned down. While you cannot open these files by double-clicking on them, you should be able to open these files using the **Open...** command from within any word processor.

Don't laugh, but I have several documents on a CP/M Machine. How can I transfer them to an Apple Macintosh?

There are two ways to do this. The first method is to transfer the documents via the serial ports on both machines. To do this:

1. Save the files as text-only or ASCII documents on the CP/M system.
2. Connect the serial port on your CP/M machine to the modem port on the Macintosh using a serial cable.
3. Start up a terminal emulation program on both the CP/M machine and the Macintosh. If you don't have a terminal emulation program for your Macintosh, you can use Termworks or Freeterm from BMUG Telecom Disk 2. Make sure that both your Mac and your CP/M have the same settings for baud rate, data bits, parity, and file transfer protocols.
4. You can now use the terminal emulation software to send the files back and forth between your CP/M machine and your Macintosh. For each file you wish to transfer, you will need to tell one machine to *receive* a file, and then tell the other machine to *send* the file you with to transfer. The exact details of this process will vary depending on the terminal emulator that you are using, but it shouldn't be difficult to do.

One the Mac side, transferred files will appear with the "generic" icon — a blank sheet of paper with one corner turned down. While you cannot open these files by double-clicking on them, you should be able to open these files using the **Open...** command from within any word processor.

I need to transfer database information from a DOS system running dBASE IV to 4th Dimension on the Macintosh. How can I do this?

You can do this by two methods, either using Apple File Exchange or MacLink.

If your Mac does not have a drive which can read IBM formatted disks, you should use MacLink to do the transfer. To do this:

1. Export the dBASE files to a PC word processor, such as WordPerfect.
2. Save the WordPerfect file as an ASCII text file.
3. Using the MacLink cable and software, transfer this ASCII text file to a Macintosh disk.
4. Open the resulting text file in Macintosh word processor, such as MacWrite. You probably not be able to open the file by double clicking on it, so you will have to open your word processor first, then open the file by choosing the **Open...** command from the File menu.
5. Make your word processing document into a tab-delimited file by inserting a tab between each field and a return after each record.
6. Import this tab-delimited text file into 4th Dimension.

If you have a disk drive which can read IBM-formatted disks, you will probably want to do the transfer using Apple File Exchange.

1. Export the dBASE files to a PC word processor, such as WordPerfect.
2. Save the WordPerfect file as an ASCII text file.

3. Open Apple File Exchange and translate the file from DOS-ASCII to Macintosh-Text.
4. Open the resulting text file in a Macintosh word processor, such as Microsoft Word.
5. Make your word processing document into a tab-delimited file by inserting a tab between each field and a return after each record.
6. Import this tab-delimited text file into 4th Dimension.

Is there a laser printer that will allow me to print from a Macintosh and an IBM computer simultaneously?

The QMS 410 personal printer can accept data from the serial and parallel port at the same time. It also prints at four pages a minute and produces great output.

Miscellaneous Macintosh

Is there a way to translate what I see on my screen into a PICT file?

You will have to use a screen capture utility such as *Capture* or *Flash* (a shareware application). If you have a color machine, be sure and set Monitor to black and white. You then select "Save to disk as PICT" from the cdev panel.An exact image of whatever you see on your screen will be saved on your disk, generally named *Screen0*. You can create up to ten such documents at a time. Each successive screen dump will have its ID own number all the way up to *Screen 9*.

I have a Mac IIcx with an 8 bit color card. Is there a shareware program that will take color snapshots or screen dumps?

Try Color SnapShot from BMUG Paris Disk 11. This fKEY will save color screen dumps in various graphics file formats.

Why is it that you can recover files after you have emptied the trash can?

When you trash a file, you are not really removing the data from the sectors the information was stored in. Rather you are telling the Mac that those sectors are now free and you can write over them. The sectors maintain the information until they are written over.

Can I use FAX modem with a Portable?

Yes, you can send and receive, but the Fax modems currently available will not wake up a Portable in Sleep mode.

I am in MultiFinder and cannot access my DAs. What's wrong?

There are several things you should check if you cannot access DAs from MultiFinder.

1. DA Handler must be in the System Folder if you want to access DAs when in MultiFinder.
2. Make sure that you are using the appropriate version of DA Handler for your System software.
3. Make sure that you have enough free memory to run your DAs.

If none of these three factors seems to be causing the problem, then you should try reinstalling your system software using the Installer from your master set of System Software disks.

If you do not have a copy of the DA Handler, you can still launch a DA by holding down the Option key when selecting the desk accessory from the Apple Menu.

How can I stop the printing of the test page every time I turn on the Laserwriter?

You can use a program such as *PS Dump* or *LaserStatus* to send a PostScript message directly to the printer. To stop printing the test page send this message:

```
serverdict begin 0 exitserver.
statusdict begin false
   setdostartpage.
```

How do you install fonts into Suitcase II?

1. Put Suitcase II into your System folder.
2. Restart the Macintosh.
3. Select Suitcase II from under the Apple Menu.
4. Click on the *Font* radio button. You will see a listing of the fonts currently available for use in the System.
5. Click on *Suitcase* button. This will show you all the font files — the fonts are stored in suitcases of their own.
6. Click on the font suitcase you want to install in Suitcase II.
7. Click on the *Open* button to install the font suitcase file into Suitcase.
8. Click on the *Quit* button to exit from the DA.

I have an old Mac 512. Can you recommend a good spreadsheet I can work with?

Try MockPackage by CE Software. It's an integrated package that includes a spreadsheet, word processor, terminal emulator, and several other desk accessories. Crunch, by Paladin Software, is a dedicated spreadsheet that will also work with a Mac 512.

What does "downloading a font" mean?

PostScript fonts not included in the ROM of a laser printer must be downloaded to the printer in order for the printer to print the font at its highest quality.

How would I put a break in a circle using FreeHand 2.0.2?

1. Create a circle with the **circle tool**.
2. Select the circle.
3. Select the **Scissor** tool.
4. Press the Option Key and click with the **Scissors** on some segment of the circle.
5. A new point appears at this location.
6. The segment where the point was created is broken into two segments.

How can I rename a Bit-mapped Font?

To rename a font properly, you must change the font's name in two places: the FOND and FONT resources. Apple does not recommend renaming fonts, so you should only undertake this type of operation if you are sure you know what you are doing. To change a font name, follow these steps:

1. Use ResEdit to open the System file or file that contains the font to be renamed. You should work on a backup copy of the file just in case something goes wrong.
2. Open the FOND resource.
3. Find the font name to be changed and click on it.
4. Go to the File menu, and select **Get Info**.
5. In the name field, type the new font name.
6. Close the Get Info and FOND windows.
7. While holding down the Option key, open the FONT resource.
8. Click once on the font name to be changed.
9. Go to the File menu and select **Get Info**.
10. Type the new font name in the Name field.
11. Close the Get Info and FONT windows.
12. Quit ResEdit and ensure that the changes are saved when prompted.

I put a bunch of INITs into my system folder, I restarted the computer and got a question mark instead of the Happy Mac icon, help!!

Your problems are probably due to two or more INITs conflicting with each other. You need to find out which INIT is causing the problem. To do this:

1. Boot from a floppy disk with a System and Finder on it.
2. When your hard disk shows up on the Desktop, create a new folder.
3. Take the System and Finder out of the System folder on the hard disk.
4. Put the System and Finder in this new folder.

5. Call the old System folder *xxxxx*.
6. Call the new folder *System Folder*.
7. Restart your computer.
8. Add your INITs back into the system folder one by one.
9. Reboot the computer after adding each INIT.

When the Mac bombs, you know that the last INIT you installed is the one causing the conflict. If this INIT has corrupted your System and Finder, you will need to:

1. Reboot from a floppy disk.
2. Trash the System and Finder on your hard disk.
3. Copy the System/Finder from the floppy onto the hard drive.
4. Restart, pressing the mouse down so that floppy is ejected and the Mac boots from the HD.

What is a "tab-delimited" file?

A tab delimited file is a text file in which field values are separated by tabs and the records are separated by returns. If you have a text file that you are going to import into a database, you need format it as a tab delimited file and save it as text only before your database will be able to read it.

What is the difference between the reset switch and the interrupt switch?

The reset switch restarts the Mac. If your Mac freezes in a crash, you can use this button to restart it.

The interrupt switch is intended for programmers and is used to invoke a low level debugger such as MacsBug or TMON. If you haven't installed a debugger, the Mac will use its internal debugger which shows the user a dialog box with a greater-than symbol ">" in it.

If you hit the interrupt switch and type the following:

```
5M 0 A9F4 <RETURN>
G 0 <RETURN>
```

The debugger *might* bring you back to your document. This procedure is not fool proof, but if you crash and haven't saved to disk, it's worth trying.

After installing HyperCard 2.0, I tried to open a stack written in HyperCard 1.2.5 and got the message, "File has not been converted." What does this mean?

You need to convert the stack to HyperCard 2.0 format. To do that, open HyperCard 2.0, and then use the **Open...** command from the File Menu to open your HyperCard 1.2.5 stack. After the stack is open, use the **Convert Stack** command under the File menu to permanently convert the stack to HyperCard 2.0.

I printed an EPS graphic with several fonts in it. Two of them printed correctly, but the rest came out in Courier. What's going on?

Your printer probably did not have enough RAM to print the last few fonts. It therefore used Courier as a default font, since Courier is already built into the printer.

If you are going to print a file with several downloadable fonts, you should test the printer by downloading each font before you print.

Is it possible to download PC fonts to a SCSI hard disk connected to a LaserWriter IINTX?

Yes, you can. Adobe provides software with their font library for the IBM PC compatible computers that will download Type 1 PostScript fonts to the LaserWriter IINTX hard disk.

What is the difference between a NuBus card and a Processor Direct Slot?

In simple terms, the a PDS card communicates directly with the CPU while the NuBus card communicates with other chips on the logic board before the CPU.

All the icons on my Desktop have gone blank, so I think I have the WDEF virus. How can I get rid of this virus?

If you don't have any sort of virus detection or prevention software, you can get rid of the WDEF virus by:

1. Rebuilding the Desktop file on your hard disk by restarting your machine while holding down the Option and Command keys. You will then get a dialog box asking if you want to rebuild your Desktop — you do. Don't release the Option and Command keys until you get this dialog, or it won't work.
2. Rebuilding the Desktop on all of your floppy disks by holding down the Option and Command keys while inserting the disks. As with your hard disk, you should keep these keys depressed until you get the "Do you want to rebuild the Desktop..." dialog box. WDEF may also have infected some disks whose icons seem normal, so you really do need to do this for every single one of your floppies.

While this method of getting rid of WDEF will certainly work, we do not recommend it for three reasons. First, it will take a really long time to complete, and you can never be sure that there isn't some disk somewhere you have forgotten to clean. Second, you may be rebuilding the Desktops on many disks which do not contain WDEF, since you don't have any sure way of knowing which disks are and are not infected. Third, if you have missed a disk, or someone gives you a new disk with WDEF on it, WDEF will immediately re-infect your hard disk when you insert the infected disk into your computer.

Instead of trying to clean every single one of your disks, it will probably be much easier to use a virus protection program such as Disinfectant from BMUG Utilities Disk 8. Disinfectant will allow you to scan your disks for WDEF and other viruses, and can also remove any viruses it finds.

What is the difference between "Bit Mapped" graphics and "Object Oriented" graphics?

A bit mapped graphic is a group of dots which create a picture. If you double the size of a bit map, all that happens is that each dot gets larger, giving the picture a "jagged" look. An Object Oriented graphic is made of mathematically defined lines and shapes. It can be enlarged and not effect the smoothness of the line.

What are the most common formats for graphics files?

PICT is *the* generic graphic file format on the Macintosh. PICT contains encoded graphics in QuickDraw, the internal graphics command set used by the Macintosh. Graphics kept in Scrapbook are in PICT format. Most graphics programs, such as Freehand, Illustrator, Canvas, and MacDraw, can read PICT files.

PICT 2 is a color version of PICT.

PNTG, or MacPaint format is also a standard format for black and white, 72 dpi bit-mapped images. MacDraw, Ultra Paint and MacPaint will all store files in this format.

GIF is a format invented by CompuServe to store color graphics. These files can be viewed on a color machine by *Giffer*, a shareware program.

TIFF, or Tag Image file Format, is generally used for altering and saving scanned photographs. TIFF is used by image processing applications such as Photoshop, ImageStudio, and Digital Darkroom.

PostScript is a programming language used to describe graphic images. While PostScript cannot usually be displayed on the screen, it can be used to print complex and otherwise impossible graphics to a PostScript printer such as the Apple LaserWriter.

EPS, or Encapsulated Postscript, is used to store PostScript graphics commands with a bit-mapped image which you can see and manipulate on your screen. EPS is useful since PostScript commands cannot usually be displayed on the Mac screen, so the EPS bit-map allows you to see what you are working with. Pagemaker, Photoshop, and Studio 8 all save files in EPS format.

Can I take the four 1 meg SIMM chips from my Mac Plus and use them in my IIci?

This depends on the speed rating of your SIMMs. If they are 80 nanoseconds or less, yes. Most one the meg SIMMS circulating now are 80 nanoseconds, so you should be able to use them.

When you add SIMMs to a Macintosh Plus, do the one Megabyte SIMMs go in the front row or the back?

The one Megabyte simms go into bank one and two, closest to the mother board. The 256K go into row 3 and 4. When adding SIMMs to your Mac Plus, don't forget to cut the R8 resister in the top left hand corner of the logic board. If your still not clear on which bank you need to use—check out the *BMUG SIMM Stack* on BMUG's HyperCard disk Utilities 1.5h.

My RAM chips bear the inscription "Japan D000 - 8917 TND - KM511000 KS12S." What do these words and numbers mean?

Japan indicates the country the chip was manufactured in. *8917* indicates the the year and the week of the year when the part was manufactured. In your case, *8917* was made in the 17th week of 1989. *TND* is a serial number of sorts which indicates when in the week the part was made.

The *KM* from *KM511000KS12S* indicates who the manufactured the chip. In your case, KM stands for Sangsung. A few other manufacturers are:

HM . . . . . Hitachi.
MB . . . . . Fujitsu.
TC or TM . . . . . Toshiba.
M5M . . . . . Mitsubishi.
uPD . . . . . NEC.
TMS . . . . . Texas Instruments.

Finally, *511000* is a part number of sorts, it indicates that this is a one bit fast page mode DRAM. *12S* is the speed rating for the chip, this chip is has a maximum access time of 120ns.

My First BMUG Meeting

by James E. Kelley

I was really looking forward to my first meeting. I'm a new member from Iowa and last September I bought my first computer. I was really having a hard time deciding between a PC and a Mac, but like many creative folks (I'm creative) I picked the Mac. I made the right choice and am very happy with it, especially since I use a PC at the office once in a while. But, I'm getting off the subject.

I have a son and a daughter, who live in the San Francisco area; so on my next vacation visit I wanted to attend a Thursday evening BMUG meeting.

My son was educated on PC's, but I thought I could get him to go to a BMUG meeting with me. He agreed, humoring his Dad, and we made plans to meet at the Berkeley BART(their subway) station after he got out of work. I got there early, since we would not have much time to eat dinner and get to the meeting by 6:00 p.m. I wanted to be sure we could find the meeting place as I have never been on the Berkeley Campus.

I drove my rented Escort around looking for the best place to start my search for the meeting hall. Just by chance I came upon the East Gate on campus and asked the pretty coed there, "Where is the Physical Science Lecture Hall?" She said, looking to her right, "It's that building right there." I said, looking out my car window, "Where?" "That round, low, flat building right there." "Oh," I said, "where can I park?" She sold me a parking permit for $2.50 and gave me a Map & Parking Regulations folder. Next, I asked where the BART station was. She leaned out of the booth and pointed it out to me on her large map saying, "Just follow this road through campus and you'll come out at Center Street. BART is just two blocks down." "Thanks," said I and drove off.

I found a parking place on Shattuck (a street in Berkeley, for you guys from Nebraska) and waited for my son at BART. He arrived at 5:15 p.m. I asked him where would be a good place to eat and he suggested an Italian place he had been to before. We walked to it and stuffed ourselves. We didn't dilly-dally, not knowing if they start the meetings right at 6:00 or not. We found a parking place, fairly easy near the Physical Sciences Lecture Hall (PSL).

We walked over to the PSL and saw a thin yellow ribbon over the door... so we walked around the building thinking that must have been the back door, but no, that was the main door. I walked in, ducking under the yellow ribbon, and there was a workman. I asked, "Where is the BMUG meeting?" And he said, "It isn't here. We are removing asbestos in this building." I said, "Do you know where a BMUG meeting might be held?" "Sorry, can't help you, most all buildings are locked at this time of night." We went back to the East Gate, just a stone's throw away, and told the same coed, "We are looking for the BMUG meeting." She looked at me as if I didn't know how to speak English and I said, "It's a computer group that meets every Thursday, year round." She thought a second picked up her walkie talkie and called someone else, asking him if he knew the location of the BMUG meeting? He came back with, "Last week it was held at one of three buildings," Which one? He couldn't remember. He rattled off three names and she pointed them out to us. They were all within walking distance and we entered the first building, Gilman, a four or five story building. We walked up and down all floors looking, and looking and found a girl sitting at a Mac in a computer room. I asked her if she knew of the BMUG meeting-place? She

looked at me as if I must be crazy, said "No! Like, don't bother me dude." We left and went over to Giauque, a three story building. We searched that one too and found no one who knew of a computer meeting in that building or any other building.

We went over to Latimer, the third building that had been pointed out, and all the doors were locked. As we walked away we found another guy locking his racing bike to the bike stand right next to the PSL. We let him walk in, knowing he'd be out in a few seconds. Then I asked him if he was trying to find the BMUG meeting? "Yes," he said, looking as though he had found a gold mine. We explained what we had just gone through and at that moment a man walked by looking like a professor(He had a beard). Our new friend asked him if he knew which building the BMUG meeting was in. He suggested, "Wurster, the science building has a computer room in it, maybe it's there..." So, we walked down to Wurster and found the glassed-in computer room on the second floor. There were two students working on PC's. I held up an article about BMUG that I had cut out of Microtimes and put it up against the window for them to look at.

(The door was locked, we could not walk in) I shrugged, "Like, can you identify this?" They shook their heads no. Our new friend said, "Why don't we call the BMUG Hotline number and see if they can tell us where the meeting is?" We did and the answering machine told me the office is closed and to please leave a message and we will get back to you. (joke)

By the way I left out another young man we bumped into standing next to his car in a nearby parking lot. He said "Are you looking for the BMUG meeting? I can't seem to find it."

We parted with our new found Mac friend, after finding out he had an SE/30. He was from the state of Washington, visiting during the summer.

My son and I drove around the campus just to feel as if we had accomplished something and then took off for his home.

Sure seems as though there could have been some kind of poster at the PSL, spelling out where the meeting was going to be held. Maybe it was in my June newsletter, although I honesty can't remember reading anything about it.

I can't wait for my next summer vacation and my first BMUG meeting.

A Friendly Reminder on Viruses

by Alex Lau

The virus scene has changed very little in the last year. A couple of new viruses, and new variants of old viruses have surfaced, but nothing life-threatening has appeared. No known viruses have done any intentional harm. New versions of the standard virus protection and prevention programs have slowed the spread of viruses among the Macintosh cognoscenti, so much that without a friendly reminder, you could almost forget that viruses exist.

The most significant virus news has been the introduction of the new *Disinfectant (version 2.4)*, with its prevention INIT. This put *Disinfectant* in the same ballpark as the commercial anti-virus applications, such as *Rival*, *Symantec Anti-virus for the Macintosh* (*SAM*), and *Virex*. I can now recommend *Disinfectant* without reservations to anyone, because for no more than the cost of a disk, it is one of the best anti-virus programs on the market.

The only major difference between *Disinfectant* and the commercial programs is in upgrading when a new virus comes out. Since *Disinfectant* is freeware, the author—John Norstad, of Northwestern University—cannot send disks to users when a new

version becomes necessary. If you don't have access to a user group meeting, a telecommunications online service, or MacWEEK magazine, then you should probably get a commercial package to get the update notices.

Despite what I said about there being nothing really new on the virus scene, there are still people out there getting themselves infected. Because of this, I want to remind everyone to practice safe computing. If you don't know what I mean by safe computing, read on.

Are you infected?

If you don't have any virus prevention devices installed and you haven't specifically checked for viruses with a current virus detection application within the last three months, then I suggest you do so as soon as you can. Here's a step-by-step way of going about it:

1. Obtain a copy of *Disinfectant*, and make sure it's the latest version. You can get it from the BMUG BBS, or if you don't have a modem, on BMUG Utilities disk 8 for $4.
2. Obtain a clean set of System disks. If you can't find yours, or if you're not sure your set is clean, get a set from your local dealer or from BMUG. Before you insert them in any machine, lock them.
3. Using the Installer on the system disks, make yourself a minimum system. For further details, see the Macintosh Reference manual.
4. Add *Disinfectant* to your minimum System disk. If there isn't enough room on the disk, remove all unnecessary fonts and DAs from the System file with the *Font/DA Mover* application, then try again.
5. Lock the disk by opening the write-protect tab on the upper right hand corner of the disk. You should be able to see through the write protect hole when the disk is locked.
6. Boot from the disk and run the Disinfectant application. Select the All Disks command from the Disinfect menu.

That's all there is to it. Your hard disk should now be clean. You can also use Disinfectant to check all your floppies. Sounds like fun, doesn't it?

Safe computing

Now that you know you're living a clean life, let's make sure you stay that way. Here are a few things you can do to keep yourself virus-free, or close to it.

1. Keep informed. As I said above, user group meetings, online services and MacWEEK magazine are the best ways to get the latest information on new viruses and new versions of virus protection applications.
2. Keep current. Once you find out there's a new virus, get the newest version of *Disinfectant* as soon as possible and check your hard disk with it.
3. Check everything new. Whenever you get a disk from someone, check it to make sure it's clean before you use it.
4. Install the *Disinfectant Protection INIT*. This INIT will detect all known viruses as they attempt to spread; if it finds anything, you then run the Disinfectant application to rid yourself of the virus. If you do nothing else, do this.

Ever since I've started following the steps above, I haven't been infected once.

"*Disinfectant* may be able to remove all known viruses, but what if I have something new and unknown?" you may ask yourself.

If you're getting unexplained errors, call the BMUG Helpline and find out if there is an explanation. Often, INIT conflicts or corrupted System files could be the culprit where you thought a virus may have entered your life.

Keep in mind that if you're infected with a Macintosh virus, it's not the end of the world. You don't have to be paranoid. Just keep your eyes open and practice safe computing.

Alex Lau is a graduating senior in Political Science at the University of California at Berkeley. He hopes to be employed soon after graduation, hint, hint, nudge, nudge.

Easy Computer Shopping Guide

by Daniel Kegan

The Macintosh's fundamental advantage is its consistency across applications. Apple has extensively researched and applied "human factors engineering" to place

the user in the center and make the computer act as a peripheral. Apple's Human Interface Guidelines (Addison-Wesley, about $20) state the research citations and conclusions: let the user safely experiment and change his or her mind, give immediate feedback, make command choices based on menu recognition not abbreviated recall, and most crucially, provide the stability of a consistent interface, ease learning across applications, and reduce errors.

Because of the consistency and user-centeredness designed into the Macintosh system of computers, Macintosh purchase recommendations will be easier than recommendations for DOS computers. My comments are directed to attorneys, but many also apply to other professional businesses—accountants, consultants, and architects.

1. Find out who will use the computers in your firm.
2. If you plan on using a computer, skip to item 7.
3. If lack of typing skill restricts your computer desire, use one of the good typing skill Macintosh applications, and skip to item 7.
4. If you do not want to learn to type, consider whether a mouse-menu system may help you with editing, analyzing spreadsheets, or accessing information.
5. If you still do not want to use a computer, stop reading now. You should not be centrally involved in the computer decision for your firm. Transfer or delegate the task to a partner or associate who really wants a computer.
6. If no one in your firm wants to use a computer, consider studying how your firm will effectively compete given the quality and cost pressures in the coming decade.
7. Recognize that Macintosh users generally rave about their computers and that DOS users may even like their machines. If using a computer is not a fit for you, it doesn't make much difference what others recommend.
8. Take one hour and go to your local computer store that carries IBM and Apple equipment. Spend twenty minutes doing word processing on a Macintosh (MacWrite or Word). Spend twenty minutes doing word processing on a DOS system (WordPerfect or Word). See which you like best. Evaluate the service you get; if you don't like it, there are probably other local sources when you're ready to buy.
9. If undecided on your basic platform, take another thirty minutes and try other types of programs on both platforms: spreadsheet, typing instruction, telecommunications, graphics, and games.
10. Consider whether IBM is a major client of your firm, or if you have other factors that may influence your decision.

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11. If you find you like the Mac and find it easier to use, but you waver because the majority uses DOS systems, consult with a Mac user or BMUG.
12. Go slow, so you can learn from the experience of computerizing your firm and still stay in control. Buy one Macintosh computer, word processing software, and perhaps another application, either time keeping or spreadsheet. Avoid additional purchases at this time unless you get an incredible deal. Negotiate for the same deal with an option for more purchases within the next six months.
13. Buy hardware locally. As of Spring 1990, choose a Macintosh SE/30 or, if you have the budget and want a bigger screen, a Macintosh IIci. Stay with Apple branded hardware unless you are technically oriented, have a local computer consultant you like, or get a very good deal, and are willing to deal with glitches. If money is very tight, consider the SE with internal hard drive.
14. Vow to backup all critical data frequently. Keep your vows.
15. For a few months, buy and read one of the Macintosh magazines: MacWorld or MacUser. Attend your local Macintosh user group meetings.
16. Use your new computer for one month.
17. Think about how computerization will change the work flowing your office. Plan how to make the changes smooth. Communicate, listen, and involve others.
18. Think comprehensively about computerization. Read a few more BMUG and basic management articles. Consider a good people-oriented management consultant. Computers should straighten the work flow, not simply pave the cow path.
19. Consider again what additional hardware and software you want, who's responsible for what, and when you want to start networking Go slow, stay in control, know what you're doing, and learn from what you do. Try to make only one change at a time, then take time to see how it works. Design your comprehensive master plan, perhaps an Appleshare server on the LocalTalk network, a MultiUser Double Helix server for client information, a high speed network modem, and a computer on everyone's desk; but, **purchase what you know you need now**. Give everyone enough time to adapt to their computers.
20. It's generally safe to buy Macintosh software mail order from a major dealer. Buy hardware locally, you'll need support sometime.

I like:

Wordprocessing . . . . Microsoft Word 4.0
Time & billing . Timeslips III for the Mac, 2.0
Spreadsheet . . . . . Microsoft Excel 2.2
Database . . . . . Odesta's Double Helix 3.0
Telecommunications White Knight 11.0 or Microphone II
Outlining . . . . . More II
Graphics . . . . . Super Paint 2
Free Text Retrieval . . . Sonar Professional
Litigation Companion Greenlight's Cudgel
Electronic Forms . . . . Adobe's True Form

But don't buy these all at once.

21. After your first purchase, limit yourself to one new application a month for six months. Give yourself time to learn how to adjust your office procedures to computerization. With the Macintosh, you can learn new applications quickly. However, integrating Macs into your business will take time.
22. Congratulations. You're computerizing.
23. Renew your backup vows.
24. Write a brief article for BMUG on your computer experience and how it helped your business.

(Daniel Kegan actively participates in the Macintosh community, is a copyright and computer attorney with clients throughout the USA, and develops legal applications for GreenLight Software.)

BMUG Meets MicroTimes 5.0

by David Morgenstern

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Hello, How are You, and Thank-you Very Much

This article is unlike the rest of the mulch that makes up the BMUG Newsletter compost heap. It is a compilation (with a smattering of new editorials) of a series of magazine articles about BMUG and the Macintosh world.

In the late Spring of 1988, *MicroTimes*, California's Computer Magazine, published by BAM Publications, decided to highlight their coverage of the Macintosh. They created a new section of the magazine, called Mac @ Work, consisting of two or three reviews, columns on HyperCard, Mac-PC Connectivity, and perhaps a column of news and rumors.

Mary Eisenhart, managing editor, approached BMUG for a monthly column, entitled the BMUG Report. The column would combine discussion from the weekly main meeting, Helpline experiences, and hot tips.

I was volunteered to craft the piece on the strength of my Newsletter articles savaging Microsoft, and articles on betaware producing software publishers. The scatter-shot nature of the column matched my stream-of-consciousness style — that style being my native cerebral process.

"A piece of cake," was the common opinion of BMUG regulars, thinking that the meeting minutes could be used straight from the hard disk in outline format. I can't believe I could have been naive enough to swallow that line! Steve Costa assured me that he'd have plenty of material from the Helpline. Dream on! Keeping up with the Macintosh, and other graphic-user-interface related news, means plenty of talking, telecommunicating, and reading. And then there's the writing.

Recently the magazine changed its look-and-feel. There are two tables of contents, one by product and the other by general subject (News, Business Solutions, Creative Tools, Product Spotlight, and Resources). The column is now titled a rather minimalist *BMUG*, which is perfectly self explanatory.

The column has been well received — even by non-Macintosh users! My stock in the family pride index soars when I'm asked questions while walking through the mall and down the street. My constant wearing of BMUG t-shirts has nothing to do with this process, I'm quick to point out to my skeptical spouse and daughter.

It is a great privilege to write under the BMUG banner. The helping and giving that flows daily from our staff and volunteers is an awesome reminder of the original spirit of computing. We are all doing our part to help users with their silicon cerebral extensions. BMUG needs the support of our members and of the developer community to keep up the good work.

I was not born with a hard or soft computer head; it's all right brain. I've relied on the generous help of Team–BMUG members to keep me on the path of coherence and accuracy. My special thanks to: Bernard Aboba, Scott Beamer, Raines Cohen, Steve Costa, John Heckendorn, Stephen Howard, Betsy Kennedy, Alex Lau, Art Lau,

MicroTimes, BAM Publications, Inc., 5951 Canning Street, Oakland , CA 94609 415/652-3810. 12 Issues, US: 1st Class $55, and 3rd Class $29.

Jacqueline Anderson, Avi Rappoport, Leonard Rosenthol, Alisa Schulman, Randy Simon, and Jeff Songster.

The are parts of this article that will be passe. It was news when it was written, and now it's Mac history. The Macintosh scene changes very quickly, with new hardware and software announcements daily. If you're thinking of paying your hard earned money for a Mac-something, always see if there's a BMUG take on the product. Check out Choice Products, and perhaps post a question on the BBS, or in the BMUG forum on America On Line.

It's difficult to include all users in tips and solutions. The user of a multi-megabyte Mac IIfx has a different set of concerns than someone plugging along with a 512e — perhaps more problems! I finally went into major debt and bought a Mac IIci, color monitor, 5 Mbytes RAM. The works.

If it's of interest to anyone, I also have a Quantum 105 Mbyte hard disk drive made by a San Francisco computer store, MACadam Computers. I stuck a used RasterOps 108 8-bit card in the IIci to get the video cooking a bit. I have a trusty Supra 2400 baud modem for cruising around the ether. I've been true to my new year's resolution to reduce my computer debt before getting a laser printer, CD-ROM drive, and cache card. I also promised my better half that we would direct our family finances to getting a couch upgrade. Our current model is a before-its-time giant pillow couch we bought with wedding money 14 years ago.

A couch tip: Don't buy a white couch, even if you promise never to sit on it. This is why my in-law's living-room furniture looks so great, but we've not been dutiful children. We've ruined our furniture by sitting and sleeping on them.

Onwards!

July

The Name Game

You can learn a lot about the world, and ruin a good education, by really reading marketing representatives' countless handouts. I feel that it's only good manners to take them, or at least one helping.

I pile *important* press releases, brochures, newspaper clippings, and disks in a gray bin next to my desk. When it overflows, on to the floor and my feet, I read everything again, hoping to capture my original reason for keeping the things.

Since we live in a small apartment, I have to be ruthlessly selective in what I keep. But sometimes a nugget of gold washes ashore.

Back in December 1989, Apple Public Relations sent out a two-page press release covering "progress" on System 7.0. The wordy first page came out of the printer stale, although it admitted that a number of "core technologies," Layout Manager and the printer goodies, wouldn't make the first cut in a "Summer 1990 release" (dream on!). As I turned to page two, an item flew off the page, blinding me — I thought for a moment it was a moth disturbed from sleep, but instead it proved to be another example of Apple marketing double-speak.

Under the heading, System 7.0 Hardware Requirements, was a chart with a million check boxes. It began with the following line — "As shown in the chart, System 7.0 will operate on ALL Macintosh® computers with 2Mbyte of RAM." I've never understood why Apple people insist on spreading their memos and documents with a thick layer of ®, ™, and © marks, especially for names they've already

used three times before. Apple legal should smear all of Apple's trademarks in gray ink at the bottom of the letterhead next to the address. The all caps word "ALL" was a nice touch, even though a heavy finger on the Caps Lock key is a dead giveaway for ex-IBM employees. It's just the only way character-based computers know how to provide *emphasis,* **right?**

The chart lists Macintosh models, from 128K Classic to the then-top-of-the-line Mac IIci. They're all there, I could see, but could Apple really mean **all** Macs? People buy old 128 and 512K Macs, "for the kid," at swap meets and call BMUG to complain that they can't run HyperCard. I cleaned my glasses.

Next to the models are the required hardware configuration for each flavor, most reading "2Mbyte minimum." This was a confirmation of the System 7.0 watchword of the 90s, *get more RAM.*

The required configurations for the 128K Classic, 512K Fat Mac, and 512KE Braindead models had an important caveat — "Upgrade to Mac Plus and 2Mbyte minimum." I guess *ALL models* really means the Mac Plus, since there's not much left of your 1984 caterpillar after it turns into 1986's butterfly. Does Apple Public Relations think that an upgraded Classic is not a Plus?

Perhaps more importantly, Apple left the required SCSI hard disk off the chart. It's almost impossible to run applications on a two floppy system with the current operating system — forget it with System 7.0. The word from 7.0 ßetaLand suggests that unaccelerated Mac Plus users may find performance a little too slow for comfortable use. It's very likely that Apple's testers and programmers are used to working on blindingly fast Mac II-flavored machines, and have forgotten how relaxed the pace is on older models. It's not a computer, it's a stress-free lifestyle!

Tails of the BMUG Meating Knights

Things are always jumping in the weekly BMUG meetings. The news, rumors, and tips that fly around the meeting hall are always interesting — sometimes useful. Some of the "solutions" thrown out to poor, distressed users may require an advanced university degree in engineering, or programming. There's plenty of incredible business during product demonstrations, too. Here's a taste:

- Have you ever noticed that when you go to the doctor's office your symptoms disappear? The opposite is unfortunately true for vendors attempting to demonstrate their products at BMUG meetings. If there's a bug in a program, it will be revealed during the demonstration. Over and over the representatives repeat the this-has-never-happened-before mantra. Sometimes we take pity on them and point to the unbelievably high number of INITs dwelling in the system on the Mac IIcx that we use for the meeting. Or we tell them of the times that the computer has been dropped on the floor. But sometimes a crash leads to a blood lust, a feeding frenzy, a computer lynch party looking for more bombs and programming errors.

However, some people need no help in digging their own graves. A vendor was showing an archiving INIT/cdev at a recent meeting that adds file-compression to your Mac system. He started archiving the large multimedia files which had been loaded on the hard disk by the folks showing another product following his demonstration. I yelled out to him that it might be better to use his own files, instead of taking the chance with other people's work. Stop worrying, you mother hen, was

the response — Crash! "This never happened before."

- Marketing representatives have their own special language, as does any profession. New words sometimes pop into being at meetings, and it's a particular thrill to see novel ideas given a symbolic representation for the first time.

Software and hardware publishers are always looking for *market share,* their slice of the Macintosh pie. But what do you do when you don't have a product? This happens often in the computer industry. A pre-release, or prototype, version of a product is announced, but it takes time (sometimes years) to get the thing out the door. A RasterOps salesperson described their just-released 364 color board as having "good *mind share.*" This is the number of persons that have a positive opinion of a non-product. Did they suffer from *board*-om while waiting for the release?

Since there were no sales or shipping figures to base this assessment, it must have been based on the number of people that stood in front of their booth at the last Macworld Expo and made whimpering noises while looking in their wallets. Perhaps the drool covering the floor was measured with a hydrometer.

- One thing that drives all BMUGers nuts is vendors that have thrown out the Apple Human Interface Guidelines and decided they know better. Small deviations are allowable with a great program and a properly apologetic attitude. A firm promise to fix the offending code in the next version will usually stop the riot.

A grammar-checking program's demonstration was moving along swimmingly, until the presenter mentioned the Command Key equivalents for buttons. "Just hit **Command-C** and you'll check the selected word." The poor guy never knew what hit him. Even PC people must learn that Cut, Copy, and Paste (**Command-X, Command-C, and Command-V** from the keyboard) are sacred. Fortunately he had already started a list of BMUG meeting comments for the 2.0 release, so mercy was shown.

I've been reading an electronically published dictionary of recent computer slang, called the *Hacker's Dictionary.* It's by Guy Steele Jr., Raphael Finkel, Donald Woods, Geoff Goodfellow and Mark Crispin, with assistance from the MIT, Stanford, and Worcester Polytechnic Institute (WPI) AI communities. Here are a few definitions that seem to apply to this situation.

Cuspy [from the DEC acronym CUSP, for Commonly Used System Program, i.e., a utility program used by many people] (WPI) adj. 1. (of a program) Well-written. 2. Functionally excellent. A program which performs and interfaces well to users is cuspy. See RUDE.

Rude (WPI) adj. 1. (of a program) Badly written. 2. Functionally poor, e.g. a program which is very difficult to use because of gratuitously poor (random?) design decisions. See CUSPY.

Demented adj. Yet another term of disgust used to describe a program. The connotation in this case is that the program works as designed, but the design is bad. For example, a program that generates large numbers of meaningless error messages implying it is on the point of imminent collapse.

Macintosh users in general, and the BMUG peanut gallery in particular, are a picky bunch of users. Our computer of choice was designed around the user, not the computer engineer. Although the Macintosh Interface has grown and developed over the years, it is a credit to the genius of the original programming team that most of their ideas are intact. The Mac-ness of a program is still discussed

at BMUG, as it was in the early days when baskets full of trashy Apple, CP-M and MS-DOS ports tried to find their ways into the hearts of Macintosh users. A mouse? Huh?

- Our weekly computer soirée is starting to catch the public eye. *San Francisco Focus* magazine mentioned us in their yearly Here's the Best feature. "BMUG, otherwise known as the Berkeley MacIntosh (yes, they spelled it with a capital "I") User's Group, this is the largest Mac-users group in the world, with a weekly open meeting that's a cross between a techie trade show and the Free Speech Movement. For some computer enthusiasts, this is better than sex."

A quick poll of the crowd showed that we would take this lying down. A couple of new members of the peanut gallery perceived this as some kind of loyalty test, swore off sexual relations forever, and became the first BMUG monks and nuns.

Bytes and Pieces

- The Apple Worldwide Developer's Conference was held in May down in San Jose. All the developers laid out a lot of money to hear speeches by bigshots, and get copies of the latest development version of System 7.0. It was handed out in CD-ROM format, so we know that sales of Apple's CD player will be brisk.

Developers that requested vegetarian meals during the conference got a cute card — the conference wanted to guarantee that no carnivore would decide that the grass was greener, and try to cut into the special meal line. The card was green, with a pink hand pushing an ADB plug into a broccoli flowerette.

- A common question on the BMUG Helpline asks if all Mac II models can be placed on their side. The original Mac II had some heat problems when placed on it's side. Most people would put the floppy drive side on the top, placing the power supply on the bottom, and that seems to be a problem. Kensington makes a stand for the Mac II that gives a little more ventilation room. Some people have recommended pulling out the little plastic slot doors, which will really open things up; however others think this may interfere with proper airflow patterns. If you do remove the shields, check back there for spiders every now and then. This is not a joke. Living insects, bugs, and spiders have found their way into the backs of open computers and have caused problems like their software cousins. Use compressed air to remove any freeloaders. The compact Mac II series (IIcx and IIci) were designed to be put on their sides.

The biggest concern with side shifting for any flavor of Mac II (it's difficult to use your SE on its side) is the hard disk drive. After backing up your hard disk, you can change the orientation of your Mac (or any computer, or hard disk). Turn the drive off until it's cold, perhaps overnight, then reformat it in the new position. The drive may wear out more quickly if this is not done, and you might lose data.

- How many times do you get to see a real, live Finder bug? Usually you see the result of a bug — Crash! But here's a System 6.0x bug that you can live through.

Take a dead disk, one that can't be initialized. Put in back in your disk drive and try to format it. When you get the tough luck dialog, start typing — anything but the return key. You'll see

that a line of text walks across the box. Wasn't that fun?

Warning

Several BMUG members have reported having their Macs stolen in the San Francisco Bay Area with the same modus operandi. The thief reads the want ads and finds a Macintosh for sale. He then calls the seller, asks for the price, and then the address to pick up the computer. He never shows up to purchase the machine, but a week or so later drops by your house when you're not there to steal your Mac.

Consider the following:

- Never give out your home address, or directions to your house to anyone answering an ad in the paper.
- Always get the caller's phone number and name, and call him/her right back. If the caller will not give his/her name, tell them to forget the deal.
- Try to show the computer at a neutral location, church, restaurant, or user group meeting.

Shareware Spotlight

I'm continuing my campaign to destroy the working productivity of Macintosh users. Can I help it if I'm getting hooked on games? I used to be the serious computer user, with my nose to the database. No longer! I'm playing at all times of the day, even when I'm supposed to be writing, parenting, and BMUGing. But if everyone else is equally inefficient, then I'll be happy.

Solarian II is on BMUG Paris 23 disk

Mac II users should all have a copy of Solarian II. This program by Ben Haller, a University of California student, is a commercial-quality, arcade-style game. It has wonderful color graphics and sound. The program requires the use of two hands, three eyes, and a lot of luck. You control a little gun and shoot at a swirling array of stylized bad guys that are dropping bombs and worse. I showed this game off at a meeting a while ago, and fortunately didn't get destroyed in an early round. I could hold my head high at dinner.

There are still a couple of bugs in the program, but nothing fatal. Occasionally the program doesn't recognize a high score, and forgets it's sounds if you quit and then return to the action. Despite the warts, this game will keep you up all night. Excellent!

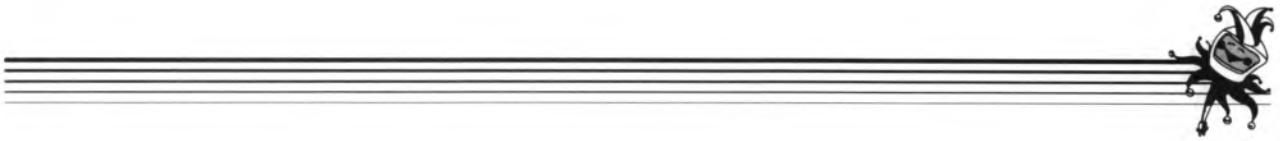
August

It's very hard to write while listening to a baseball game on the radio. It's hard to do much of anything, except eat, while keeping an ear out for the count on your favorite batter. It's almost impossible to think clearly about technical Macintosh matters with runners on first and third.

When the San Francisco Giants were losing regularly in the spring, it was better to hit the keyboard than face the bitter music of a defeat. No matter how hard I'd strike the keys, grind my teeth, grumble and moan, nothing could drown out the hangdog murmur of the crowd.

But the Mac is so much fun, that it promptly wore the edge off my sports induced depression. A winning baseball team and a Macintosh — that's a combination that puts me in the clouds!

Hard Ball

Why are we so surprised when we have trouble with our hard disk drives? Is it the reassurance of the name, *hard* disk? You'll never see an advertisement for a tough, steel belted radial all-weather smooth-riding drive. Maybe

it's the case that surrounds the drive? It's made out of metal, and the cat can't scratch it, so it must be sturdy.

We act as if our files are something more than invisible patterns of magnetism hidden in layers of ceramic and metal. Perhaps it's because we use familiar words — read and write, that have real world non-virtual counterparts, that we feel our data is indestructible. Intellectually we know that the hard disk is a fragile electronic machine, but emotionally we believe that the hard disk *writes* the data on the platter, like a typewriter smashes ink into a sheet of paper.

The high resolution Macintosh screen and clear graphics support this superstitious conditioning. When we're done reading a page, we can throw it away in the trashcan. The symbol and the reality have become blurred in fuzzy illogical thought. We're uncomfortable with the thought that we've built the foundation of our data home on eggshells. No wonder that this technology was invented in California, where we keep building houses on the sides of hills in earthquake and landslide country.

A user in data denial is a terrible sight, especially in experienced technical types that are supposed to know better. Steve Costa, BMUG's resident technical resource, and I talked about backing up while trying to recover a poor programmer's weeks worth of double and triple overtime programming. It's hard to be brave and put on a good face at 11:00 at night after a BMUG meeting, facing a dead 100 Mbyte drive. Experience is our name for accumulated errors — human and computer.

Here's some random bits on hard disks and living with them:

- In 1986, Reese Jones, one of the founders of BMUG, and now boss of Farallon Computing, said that anyone that needed a hard disk larger than 20 Mbytes was a software pirate. This was nonsense then and now, but it lead me to formulate Morgenstern's First Law of Hard Disks: *The optimum drive size doubles every two years.* The best size for a hard disk in 1986 would have been about 40 Mbytes. The optimum size today is around 170 Mbytes!

A small drive may be just right for a user when starting out, but turns into a cramped attic a year later. Larger drives are more expensive, and have the room to accommodate the future demands of developers and users.

In 1986 most Mac users only dreamed of getting a hard disk (or additional memory), and publishers wrote programs that didn't require extras. But soon many programs, and even Apple-provided "system software," like HyperCard, required a megabyte of memory and a hard disk drive.

Memory-hungry graphic, or multimedia applications, with their huge document children, are moving into the neighborhood. Programs like PhotoShop already require plenty of desktop real estate for their files (scanned images are often two or more megabytes), and use virtual memory just to hold documents and changes while the program is operating. Users want to be able to manipulate their data **and** undo those changes.

System 7.0's built-in virtual memory (for 68030 Macs, or equivalents) will help developers push current memory barriers aside. Virtual memory needs contiguous disk space, something hard to find on well-filled 80 Mbyte drives. It won't be impossible, but you may have to do some trimming and optimizing to get the needed space.

- The demand for the high capacity drives has brought out the worst in some drive manufacturers and ven-

dors. Most drive suppliers buy the actual drive mechanisms from a few manufacturers, and then add-on power supplies, cases, controllers and fans. I recently spoke to an hardware engineer that puts prototype drives through their paces. He spilled the beans over pizza and beer — the correct combination to open a hackers heart.

A major drive manufacturer had developed a new drive that uses a special memory cache to speed things up. The cache hard and software combination had not been fully tested and implemented, but the company shipped over a 1000 pre-release drives to a discounter. The Mac IIci and fx models would have trouble with these drives, but the bozos assumed that most would be sold to owners of less problematic flavors of Macintosh. They hoped that by the time angry users fought their way though the customer service maze to get a drive that functioned properly, the bugs would have been worked out. The only losers were be the users that unknowingly enrolled in a drive testing program with a simple purchase. It's the nasty old computer industry practice of "get it out the door and we'll fix what complains."

The engineer related how he had been on the phone yelling at a manufacturer about the poor quality of 200 Mbyte drives he had just received. Over 60% of the drives had problems. The engineer was assured by the maker that their product had a much better record than that — only a 14% failure rate! This insanely high figure was supposed to make our hero feel better about the product. A 14% failure rate is a quick ride to hard disk bankruptcy court.

- Most computer users do not back up their data — ever. I asked the power elite around the BMUG office, and found that only one person backs their work up, and only because his office had a tape backup. Their complaint was that high capacity drives are too much trouble to back up.

Users are living on the slim faith that they will be able to recover their work using disk recovery programs. This is playing computer Russian roulette with your data. A "recovered" disk is a nightmare, where all your files become unnamed puzzle pieces. Every file must be opened to see what's what, and what's left.

I use the three cornered hat strategy: archive, data, and paranoia.

The **archive** is the foundation of a backup. It contains everything on your drive, applications, utilities, and your System folder. It is a recreation of your personalized computer world. The archive is a like beached whale, hard to move and hard to avoid. Budget a couple of days to restore everything from master floppies in the Finder, if you have *not* used a backup program to quickly recover from disaster.

Unfortunately it takes a drawer full of floppy disks to back up a drive, even with the compression routines that some programs use. When I restored my 40 Mbyte drive recently, I found that some of the old floppies I had used for the backup were no good — my data didn't appreciate this. This discovery is always made *after* the fact, when you're trying to put everything back. If you use old floppies, always reinitialize them first, which can help cull out some of the duds. Don't just select all your old files and drag them to the trash.

What's needed for archive backups is a media that is reliable, can hold lots of data, and will not break the bank. The dinosaur of storage, the tape drive, seems to fit the bill. Drives using the Teac 45S2 mechanism are not horribly expensive, and are reliable. The cassettes hold 80 Mbytes each. Every time

tape drives are mentioned at BMUG, an argument breaks out. Unlike other more advanced (and expensive) technologies, tape can only be used for backups. A tape drive can not be mounted on the desktop and used as an read-write optical drive, or a removable hard disk media drive might. This is really a feature, since tape drives are like waffle irons, they're only used once and a while, and will last forever.

Even better, some smart Macintosh stores are renting out tape drives. MACadam Computers in San Francisco, rents out the drives overnight, and lets users come into the store for an emergency restoration.

The **data** on your disks is your most precious computer artifact. It is much more valuable than your hardware, or your software — it is utterly irreplaceable. Most data that is used on a day to day basis can be easily backed up onto floppies. This includes large PageMaker, Excel, and database files.

The backup will be easier if large files can be broken down into smaller files. If you're working on a book, keep everything in as small a unit as you can, then only the parts actually needing backing up will be written. Many backup utilities can be set to only backup data files that have been altered since the last backup.

I'm **paranoid** about loss of data. I expect an earthquake to hit while I'm writing this column. I expect the cat to jump on the hard disk sending all my data into oblivion. That's why I **Save As** to a floppy every once and a while. It protects me from having to grind my teeth down to the pulp, which I would do if I had to recreate from memory what I had written.

Thanks to my genius dentist, Dr. Dave, and my data preservation plan, my teeth are safe — or safer. Pass the French bread!

- Here's a hard disk recovery horror story, and tip from a BMUG member that makes his living writing one-of-a-kind database applications. He bought a 300 Mbyte drive from a small hole-in-the-garage company down in the Silicon Valley. The drive went dead, and the makers had him mail the drive to their shop, where they'd recover the data and fix the disk. Customer service, right?

A month later, the drive went haywire again, and our buddy drove south to deliver the mechanism in the flesh. He also wanted to check out the operation, which is difficult to do on the telephone. His drive was hooked up to a 600 Mbyte drive, and the files recovered. As the technician moved around the desktop of the jumbo drive, looking for the folder of recovered files, our hero saw that this drive seemed to contain a copy of every Macintosh program in existence.

Suddenly he saw an unusual icon, and asked the tech about it. He replied, "I dunno, some program, I guess." Our hero informed the sap that this was a program he had written, and that only he and his customer had copies. Yet here it was, sitting with hundreds of friends on this vendor's drive.

It turned out that after recovering people's drives, the workers would prowl through the volumes stealing anything they hadn't already ripped-off from other poor users. He also found his copy of Mathematica, as well as the proprietary contract programs he had written.

If you have someone else recover your data, make sure they trash the recovered files when they're done. This is the practice at the BMUG office, and should be industry wide.

Personal data files, with information that might cost you money (credit card numbers, passwords, bank account numbers), should be stored on

floppy disks, and not on your hard drive. A local corporate information broker bought a dead drive at an outdoor flea market, recovered the drive, and found all kinds of goodies. If you sell a drive, be sure to reformat it first.

Who would have thought that living with hard disks could be so complicated? I turn on my Mac and say a small prayer for my data's health and security. Will I get a smiling face, or a blinking question mark? A drive that lives, or dies? I've been thinking positive thoughts at it recently, just in case...

A Little Cute Little Byte

Macintosh programs used to be littered with little notes from the programmers to the users. Some were pictures, others were obscene, while many were just names. Apple has been removing the obvious ones, but some sneak through the censors. They are activated by hitting certain key combinations in certain windows, etc.

To see one of these "gifts," open the System 6.05 Installer program (version 3.0.1). The first window is the Welcome sign, which will not do the trick, so continue on to the Easy Install window. Type the word "ski" and you'll see the treat from the programming team. They describe themselves as, "the aunt of the world's most adorable niece, a cliff-jumping, tree-bashing extreme skier, a reptilian artist collector, a dizzy bit of goat cheese, a pilot, Alan's dad, Blair's dad, and one righteous dude." They give you a choice of busy cursors to use in the program. Very cute, dudes.

Shareware Spotlight

I've gone absolutely nuts for games this year. I never used to be so interested in them, but now I stay up all night ruining my health and my wrist playing them. We both like a shareware game called Glypha. It's a version of the commercial arcade game, Joust. You control a rider on a giant ostrich-like bird inside an Egyptian tomb. Evil sphinxes appear, and attempt to run you through with their swords.

The graphics are excellent. The game is in black and white, but has a setting to slow the game down for a Mac II. Glypha doesn't like MultiFinder, and isn't very happy when it returns from a screen saver.

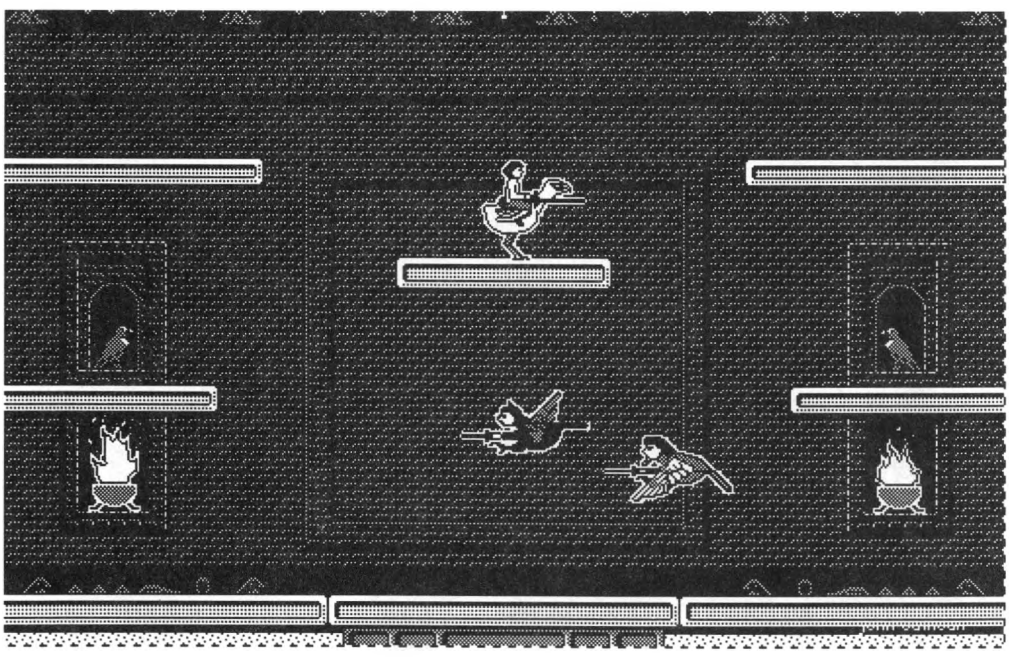


Figure 1 if you don't believe me!

If you're killed by a sphinx, you're turned instantly into a pile of bones. I keep getting zapped by the pools of lava and the eye that appears at the wrong times. Anyone that says that Glypha sphinx is not a party animal!

Glypha is on BMUG Games 67 disk]

special "golden parachutes," when they're diving out the window. The buildings of the Cupertino campus are not too many stories above ground level, so the corporate captains are off and running in nanoseconds.

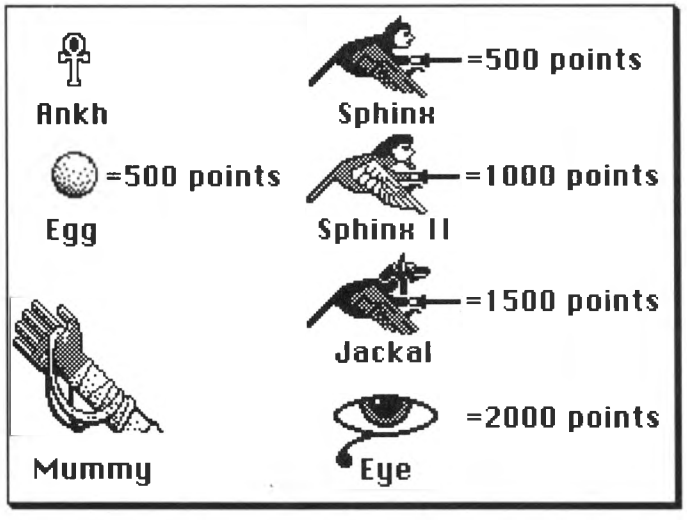


Figure 2 that 2000 point eye, I've never beaten it

September

I'm on a diet now, and every thought turns to food. I've served up a fresh slice of pizza BMUG style — hunks of Apple, hacks and viruses. This may be seem an unusual mixture to some pepperoni-only eaters, but not to the Berkeley crowd. After meetings we head down to Nino's Brazilian pizzeria for hearts of palm, artichokes, and linguica. Dig in!

Apple Turnovers

- Apple headquarters is still resembling an airline terminal, with international incoming and outgoing traffic. One high mucky-muck takes a hike, and it's time for another management reorganization. Some of the departures are people cashing in their stock options, or taking their

In July, Bill Atkinson, one of the great Macintosh programmers, left Apple to form a new company, General Magic Inc.. Bill wrote the original QuickDraw graphic routines used in the Lisa and Mac. He wrote MacPaint, so that users could take advantage of all the neat programming he had accomplished in QuickDraw. He's also the father of HyperCard, the fantastic programming tool that comes free with every Mac. Bill was joined by another famous programming star, Andy Herzfeld, and Mark Porat, an ex-Apple engineer.

The company will be working on some Advanced Technical Group, Apple's think tank for new projects, high-tech toy that Apple decided was not right for the product line. They covered their bets with a minority share in the venture, that's described as an "Apple spin-off." The word is that the product will be "educational," perhaps named the Personal Communicator. You can bet that something cooked up by these guys will not be something that only kids will want to use, unless it's built into a skateboard.

Magic *adj.* 1. As yet unexplained, or too complicated to explain. (Arthur C. Clarke once said that magic was as-yet-not-understood science.) TTY echoing is controlled

More from the "Hacker's Dictionary" by Guy Steele Jr.

> by a large number of magic bits...This routine magically computes the parity of an eight-bit byte in three instructions." 2. (Stanford) A feature not generally publicized which allows something otherwise impossible, or a feature formerly in that category but now unveiled. Example: The keyboard commands which override the screen-hiding features.

- The fallout from Jean Louis Gassée's desertion is starting to be detected in Apple's engineering departments. The big cheese, John Sculley, took over as chief technical officer, and is trying hard to fill JL's loafers. Insiders report that Sculley has difficulty handling long and involved technical presentations. A lightning presentation with glitz and fireworks will have the edge in getting the go-ahead from the boss. Has John been taking briefing lessons from the last U.S. President, Mr. Teflon, himself?

  Jean Louis may have had an ego that had properties of a gas — it moved to fill all available space, but he had a real background in engineering. He knew what was what in the computer industry, and had little tolerance for projects that didn't fit into his virtual world-view.

  Everyone is waiting to see what Gassée will do NeXT. We'll see if he can afford to be quite so sneeringly arrogant when he's no longer the top dog. Macintosh users can only hope that Sculley will get some beginners luck in the new product department.
- HyperCard 2.0 was announced on June 26, but not expected to ship until October, when the Classic Mac, the Plus/SE replacement, will be unveiled to the public. In late July, Apple kept insisting that 2.0 would ship at the end of the month, but it was pointed out a BMUG meeting that the shipping destination was never specified. Perhaps it was sent to Bill Atkinson's old address — return to sender.

The program is so far overdue that Apple felt they had to do **something**, even announcing a release that the whole world knew was coming. Did Apple think that we didn't know they were working on the 2.0 version, or that we thought they might abandon work on HyperCard?

Features were still being added as the marketing department prepared the press releases. A book and disk combination, *Cooking with HyperCard 2.0*, by HyperTalk guru, Dan Winkler (who announced that he's leaving the Apple cart, too), and the Mac programmer's helper, Scott Knaster, had already hit the shelves at announcement time. Some of the goodies in the book were so fantastic, Dan felt they had to be incorporated into HyperCard. Another example of the programmer coding rule: No line before its time.

Some industry tea-leaf readers were concerned with the departure of the Hyper Wizard, Captain Bill, leaving the ship. Atkinson was removed from running the Hyper show quite a while ago, according to insiders. The programming team got tired of Bill shooting down ideas saying that a proposed feature was too difficult for his young daughter to understand, while his own equally obtuse pet features deserved mandatory inclusion.

I Font To Be Alone

I know I'm tough on Apple, but I'm tough on all computer manufacturers. Their current "small" decisions on technology will give us either grief, or joy, down the silicon paved road. The acceptance, rejection, or invention of new hardware and software

can effect users around the world.

Users are surrounded by standards — even Macintosh owners, who still think of themselves as being computer lone wolves distant from the DOS standard. However, PostScript, PICT, AppleTalk, ASCII, QWERTY, and NuBus, to name a few, are the loose shale that we've built our house on. They don't provide a very stable foundation — which is good, since we all want things bigger, better, and faster.

Here's a little piece that Macintosh users might want to know. I wrote it for a Japanese magazine, *MacJapan*.

International committees are now making important decisions about computer standards that will impact users in Japan, and other Asian counties. The outlook seems fair for Macintosh users, but not so good for everyone else.

The International Standards Organization (ISO) has been busy working on font and character standards that can be used by all computers, large and small. Some of the standards govern font shapes, what they call *glyphs*, while others cover the *character codes* that represent meaning. We usually think of these two concepts together, but they are profoundly different.

Glyphs are the representation on a page, or screen, of a thought. The font standard (ISO 9541) will decide a specific way to draw everything that needs to be written. Information on position, size, writing mode (left-right, up-down), name, and metrics (width) will be included. The standard will cover all text processing systems, from desktop word processors to professional typesetting equipment. Adobe wants its PostScript Type technology to be incorporated in the standard, and is working to have its voice heard in the deliberations. They have meetings to talk, and sometimes yell, about this stuff.

Character codes are the numeric description of an idea. In the West, we usually think of the character as a letter, but it can be any symbol — music, dingbat, or mathematic. There are many character sets in use in computers today. ISO Latin 1 is a set with 191 graphic characters for Latin-based languages. JIS is a standard character set that was developed for Japanese. Unfortunately, it is not proving sufficient for the needs of Japanese computer users. New sets are constantly being developed to support business and academics.

Computer hardware and software manufacturers are looking for a single character standard that can grow in the years ahead, when computers will be used from Tibet to the tip of Africa. They also want to support the character needs of users in India, Korea, China, and Thailand, without pulling out their hair coping with lots of localized sets.

Apple and Xerox have been pushing a 16-bit standard called *Unicode*. It provides an efficient means for encoding text, is superior to other proposed standards, and draws from many of the sets in use internationally. The first version was released on April 1, 1990.

Unicode is divided into five zones:

- Western alphabets and other scripts having relatively small character sets. This covers alphabetic or syllabic scripts like,Roman, Cyrillic, Greek, Hebrew, Thai, etc.
- Symbols, including punctuation marks, mathematics, chemistry, dingbats, etc.
- User Characters are 4,000 spaces for vendor, or user specific characters. Grow your own symbol garden.
- Auxiliary characters for Japanese, Chinese, and Korean include punctuation, symbols, kana, zhuyinfuhao, and hangul.
- The Han character zone provides for over 44,000 logographic characters common to Japanese, Chinese and Korean. The current 1.0 version has defined around 18,000 of these, but there's room for all of them.

Unicode is fast and comprehensive. It limits the number of control characters, and uses the full 16-bit code space. An-

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Chiyoda-ku
Tokyo 102, Japan.

other positive with Unicode is the removal of redundant characters, so that the character encoding for the letter "Y" is the same for a number of languages even though it's called a different name, or that the Chinese "zi," Japanese "ji" and Korean "ja," are all given the same code.

Unfortunately there's competition in the character standard race — ISO DP 10646. This is a brain-dead alternative that's being pushed by mainframers. This proposed standard would be an adjunct to current 8-bit control codes. It reduces the space for 29,055 codes, so they won't be stepping on the toes of the older codes. The remaining space is taken up by separately encoding Han characters by language following current standards. This leaves no room for extensions, or the characters used in Taiwan, and China.

Computer analysis of the Bible's grammar and word patterns have revealed many interesting facts. Scholars of many disciplines are waiting for accurate full character analysis of centuries of Han character texts. Unicode would support these needs better than the half-baked 10646 standard.

Unicode relies on flexible bit-mapped display technology, so it's no wonder that Apple, Xerox, and NeXT are big supporters of it as a standard. Xerox has been fighting for a 16-bit character code for a long time. Companies with large investment in single character-based terminals are pushing for 10646. IBM is caught in the middle, with products on both sides of the battle, and is pushing for a compromise. Apple engineers told me that this technology will be incorporated into future Macintosh operating systems, but not System 7.0. I tried hard to pin them down to a date, but they only gave me a tiny byte to nibble on.

LateByte with BMUG

- We've started a new tradition at the weekly BMUG meeting — top ten lists a la the David Letterman show. Scott Kronik, author, HyperCard advocate, and long-time BMUGer presented the Top Ten Advanced Technology Group Projects at Apple, to a recent meeting.

10. Allocate $200,000 to study why Check Boxes are marked with an "X" instead of a check.
9. Hide secret that George Bush and John Sculley are twins separated at birth.
8. Late at night, send chief idea scientist to rummage garbage cans at the rear of Bill Atkinson's house.
7. Match Apple Support with artificial intelligence software to see if computers can emulate arrogance.
6. Design System 7.0 feature to automatically E-Mail resumes following quarterly company reorganization.
5. Hire more lawyers to protect work stolen from Xerox.
4. Allocate $500,000 for human interface research, then implement the guidelines found in Atkinson's trash.
3. Invent pseudonym for multimedia, so that the mystique is not hampered by its lack of use.
2. Test Mac viruses for compatibility with Windows 3.0.
1. Convince the Apple rank and file employees that management's golden parachutes actually enhance the "Power to Be Your Best."

MacHacked To Bits

MacHack '90, the fifth annual Macintosh Technical conference, was held this summer in Ann Arbor, Michigan. This love fest of Mac programmers, described as "96 hours on the edge," is four solid days and nights of coding and conferences, covering every angle of the development business. There were seminars on System 7.0, programming languages, software copyrights, international issues, artifi-

cial intelligence, and even writing better manuals.

Mob psychology and night long caffeinated programming sessions seem to bring out the brat in this crowd, but MacHack veterans claimed this group was pretty business-like. A notorious meeting is usually the Apple Feedback Session, which some thought it too tame — oldtimers wanted to distribute baseball bats to the audience. There were still plenty of high and low level calls by the 250+ participants and presenters.

Here are some hacked bits:

- The Apple crew was asked about the Apple FAXmodem, which was an utter buggy fiasco. The reply was that the modem had been de-announced, and Apple's legal department wouldn't allow them to comment on products they've never released. One programmer quipped that Gassée was leaving to form a new spin-off company, and taking the FAXmodem and ImageWriter LQ with him. Jasmine Computer would be providing the service for the products, and Microsoft the printer drivers. Kapow!

Someone asked why recovery functions were not included in the Mac operating system. If a disk were bad, the Finder could instantly recover the disk, instead of requiring a third-party utility, like the Symantec programs (SUM). The logical response to this group of programming professionals was, "if we did everything, you guys wouldn't have jobs." What a concept!

- The future of the computer was also discussed. One silicon futurist felt that we will see machines with 200 MIPS on our desktops in the next few years, with no tremendous increase in price. The real innovations will be in computing (software), not in computers. The problem in the future will be to bridge the cultural gap between techies, and non-techies. One group sees the limitless potential, while the other sits in front of their Nintendo refusing to be bothered. Could they be Lotus 1-2-3 eaters?
- Steven Bobker of MacUser magazine felt that Mac products are underpriced, especially utilities. This can only be a reference to the pricing situation of the PC world, where everyone expects to pay through the nose for everything, even the good, bad, and always ugly. There's been little argument about this gouging, since "business machines" always pass through the extra costs to the customer, right?

John Norstad, the creator of the anti-viral shareware Disinfectant, commented that his utility was certainly underpriced — it's free! He's still not asking for any money for tall the countless hours he's put into the program. He remains the hero of the Mac Virus Wars, and released the Disinfectant 2.0 shortly after the conference. The new version (available on BMUG Utilities 8 disk) includes an INIT virus guard, like its high priced commercial cousins.

I'd like to start an acknowledgment drive for John. If Disinfectant has ever saved your work, or any part of your anatomy, please send him a few bucks. His address is Academic Computing, Northwestern University, 2129 Sheridan Road, Evanston, IL 60208.

- There's an annual contest at the conference for the best "hack." Some of the past winners include code now incorporated into commercial programs, like tear-off menus, and color icons. This years winner was NetBunny by Dean Yu, which sends the EverReady pink rabbit beating a drum marching from Mac to Mac on

an AppleTalk network (It was a big hit as it moved around the CPU-filled Machine Room, that was open 24 hours a day for hacking..

Figure 3 is a poor dithered imitation of the original rodent

A BMUGer observed that the night guard hired to protect the thousands of dollars of equipment in the Machine Room checked the backpacks of programmers **entering** the room, not exiting. Perhaps he was told to search for nasty computer bugs?

- Another MacHack ritual is going out to a movie. The locals didn't quite know what to make of 60 noisy programmers flooding into the opening night of *Dick Tracy.* One asked a woman programmer if she was a little sorority sister of this fraternity! Everyone knew where the hackers were sitting when they started yelling, "moof, moof," at the screen — moof is the sound the LaserWriter Options dogcow makes.

Next years event is already in the works. The first planning committee meeting took place in the hotel's California Suite jacuzzi spa. The rough life of computer codepokes. Get along little dogcow!

Another fun hack was the FinderPict INIT by Chris Derossi of Apple. It displays pictures in the backgrounds of Finder windows. If there is a resource file named FinderWindowPict in a window(this would go in the WIND resource I guess — I didn't try this feature), and it has a PICT resource in it, FinderPict draws that picture in the background. This way each program can have a different picture messing up its windows.

You can also put a PICT in FinderPict itself, and that will be used as the background for all the Finder windows that don't have a special files of their own. I tried many times to install some large color PICTs into the INIT, and did I get some great crashes! Use a black and white picture instead.

There is a problem with the date modified information. Unfortunately, black text on a black background is hard to read. (As you can see in in Figure 4, Icon and Small icon views work better.) Layout will not let you change the text in the Name, Date, or Kind views to another color that might show up on a black background. Perhaps in System 7.0?

Copy Protection From Hell

- There's a new couple of Macintosh viruses making their way around the world, but don't lose any sleep over them — they only affect Atari computers. How can this be?

There have been a number of Macintosh emulators for the Atari and Amiga machines. The Spectre GCR is the most popular emulator for the Atari, by a company called Gadgets by Small. The Spectre consists of a small cartridge that attaches to a port in the back of the computer. Inside the device are 128K Macintosh ROMs, that users must buy separately. There are a couple of stores in the San Francisco

Bay Area that sell used Mac Plus ROMs, but I've also seen ads for illegal copied ROMs. Software allows the Spectre to read and write Mac disks, and use many programs. A new add-on board will give the GCR LocalTalk and a SCSI port for Macintosh hard disk drives.

Atari nuts hacking this device, and wanting help on Mac programming, sometimes show up at the BMUG developer's special interest group meetings. I regret to say that there's a bit of prejudice shown them, with the admonition to write good Atari programs instead of bumming a ride on the Mac.

One of the new viruses that attacks some Atari emulators is the Frankie virus. Frankie appears to be the first case of a virus being used for a "useful" purpose. It was created as a form of copy key protection for a now defunct German emulator called the Aladin. This use of viruses has been the subject of science fiction stories for years, and now Macintosh users are the first to see it in action (perhaps I should say Atari users of Mac programs and ROMs).

The virus checks to see if it's running on a real Macintosh, and if so, turns itself off. If it's running on an Atari, it looks for a special hardware key in the emulator cartridge. When it doesn't find the key, it displays the message, "Frankie says: No more piracy!," then causes the Atari to crash. By accident the Spectre is immune from this virus, but is susceptible to another, called the Kangaroo virus.

There was concern that these viruses might attack the current crop of Macintosh accelerator boards that put ROM code into RAM, but that doesn't seem to be the case. Steve Costa, BMUG's technical wizard, reports that Mac commercial and shareware antiviral software won't work on the emulators. This will have to be reported to the InSpectre General!

Steve is usually correct about virus matters, even when they're on other platforms and emulators. Several proud Spectre owners rang me up and set me straight. Disinfectant and S.A.M. work on the emulators.

I thought you might be interested to see the labor and international networking that goes on daily, fighting in the virus trenches. Here is a e-mail letter sent to me after I spoke to John Norstad about possible Macintosh fallout from these German Atari virii.

From: Zbigniew Fiedorowicz
Subj: Frankie virus

David,

John Norstad tells me you are interested in the Frankie virus. It doesn't work under Spectre because of a bug in the Spectre bus error handler, which is activated when the virus tries to write into address 7. (On the Atari ST, addresses 0-7 are not only ROM, but any write access to these locations causes a bus error.) The full explanation of what happens is contained in the message I sent to Doug Wheeler (Dave Small's partner) a couple of weeks ago, which I enclose below.

A very slight one instruction modification of Frankie suffices to activate it under Spectre. I understand you speculated that Frankie might work on accelerated Macs where the ROMs are copied into RAM. For this to work, Frankie has to be patched in two places. To make Frankie work on regular Macs requires a complete rewrite of the virus. Anyone capable of doing that could write a new virus for the same amount of effort.

Another tidbit: according to Professor Klaus Brunnstein of the University of Hamburg, ProfiComp, the makers of Aladin, released another virus targeted against Atari Mac emulators, which he calls the "Aladin virus". According to him, the virus is similar to the Frankie virus, except that

it doesn't display any messages, but rather crashes the system during printing operations. Klaus has promised to send us a copy, but he went on summer holidays before getting around to it.

Zig Fiedorowicz

Doug,

I've finally completely figured out the reason that Frankie doesn't work under Spectre. I was right about this being due to the Spectre bus error handler, but I was wrong about it being deliberate. It just happens by pure dumb luck. It is the damndest thing, a real comedy of (bus) errors. It is due to the fact that the MC68000 CPU does not save enough information on the stack to insure recovery from bus and address errors. In particular the saved value of PC is an unpredictable 2-10 bytes bytes past the instruction which caused the bus/address error. The Spectre bus error handler does not analyze the bus error caused by Frankie correctly and so it skips one crucial instruction and unintentionally deceives Frankie into thinking it is not running on an Atari.

(There follow several pages of commented code that trace the instructions and results of the virus. dm)

The net result is that the Frankie test for Atari hardware returns with Z-bit in SR set, i.e. "this is not an Atari." Thus the Frankie virus deactivates itself and exits.

October

The weather was hot and wet last August for the Boston Macworld Exposition. BMUG was there in force, but a few of us had to stay behind to mind the fort, and answer calls on the BMUG Helpline.

In the Physical Sciences Lecture Hall, the Thursday night meeting crowd waited in the dark for a long distance call from the booth crew. Every few minutes we'd check the line, hoping to have a giant conference rumor briefing. Nothing.

When they got back home the boothies swore they attempted calls from some monster party, but "couldn't get through." What a lame excuse — you'd think that such brainy kids could think up better alibis. I bet they spent all their spare change on cab fare joyriding around town mooning Bostonian nerds between parties, and couldn't scrape up the dimes to phone home.

Drizzle, Swizzle, and Fizzle

BMUG veterans found this years Boston show a little flat. Perhaps it was too close to the San Francisco Expo, held in April. They hadn't had enough time to pack their Expo memories in mothballs. I have the same trouble when I visit a wonderful place like Disneyland two years running. I really need a couple of years to develop enough self-willed amnesia to lovingly embrace the return visit. It's the same way with Macintosh shows too.

Macintosh developers have been busy bees crafting nifty products that will utilize capabilities of unreleased computers and system software. Apple allowed products written in HyperCard 2.0 to be shown on the floor, but not System 7.0 software. For many vendors, this was going out to the grand ball in your work clothes.

One developer told me, " My general impression was that the Macworld Expo is stagnant. If Apple doesn't release HyperCard 2.0 and System 7.0, or at least let developers show 7.0 in January, Mitch Hall [the company that runs the Macworld shows] can kiss his ass goodbye. San Francisco will be a

dead show." Expo of the Living Dead Macintosh Zombies?

The Macworld Expo/Cotillion is usually *the place* to be seen. In years gone by, publishers rode the shows with presentations of prototype software. Under the scrutiny of the Apple legal goon squad, some vendors didn't even bother showing up at the show. It's too expensive to just show up, and just put out a press release, or worse — to keep dodging questions about the non-disclosed future to every Tom, Dick and BMUGer.

The really exciting things at the Boston Expo were not on the show floor, but in the numerous hospitality suites in surrounding hotels. A new twist this show were special demonstration booths in trailers outside in the parking lot. Entrance was by invitation only, with the honored guests put under non-disclosure, and then fed digital goodies. The word leaking from the select few is of amazing animation software.

What user group has a booth in both Expo halls? This was the deciding question in the Boston Computer Society sponsored trivia contest, MacJeopardy. Bob LeVitus, a. k. a Dr. Macintosh, and BMUG member, won by correctly answering: BMUG. Our name was not on the lips of the other two trivia hounds, both Easterners.

This year's BMUG commemorative T-shirt featured a parody of the Samuel Adams beer label, a local Boston brew, with Steve Costa, BMUG's Technical Director, as "hacker patriot."

This shirt incorporated the latest in T-shirt technology to get flesh tones. BMUG graphics wizard, Robert Lettieri did the dirty work.

Our regular tie-dyed shirts were all the rage with the local thieves. Almost two dozen shirts were stolen from the booth, while the villains ignored an SE/30, hard disk, and other hardware. We were fit to be tie-dyed.

During one particularly hard rain storm, the roof started to leak — right down onto the BMUG booth! It took several hours for the building engineers to haul plastic sheets to catch the waterfall and redirect it into the aisles. Adobe has had some unfortunate past experience with this, and their Boston booth has a separate roof to protect their workers from taking a unwanted showers.

The BMUG PD ROM™ Volume II: finally hit the streets at the show. The disk contains hundreds of desk accessories, educational programs, business programs, games, and programming examples. It's packed with over 600 utilities (including anti-virus software), 800 fonts (including a library of Adobe screen fonts), and 1,000 stacks (including many not available in other collections).You'll be able to find what you need with our blazing browsing index based on HyperCard. The stack includes HyperSearch from Discovery Systems, which allows complex Boolean searching.

One of the problems that delayed the release of the disk was the headache it gave the Mac operating system. The desktop software that tells the Mac what's what, and where, chokes on the thousands of files on CD-ROMs — the PD-ROM II has 13,000! We asked Apple to allow us to give away their solution to this problem, an AppleShare Init called Desktop Manager, but they wouldn't go for that. BMUG commissioned a member of our programming group, Tom Lippincott, to write a program that does the same thing, called DeskTop Secretary.

Some reviewers have complained that our first CD was short on sounds and

pictures, and the new version has over 300 sounds, and 2,500 pictures. We've made an effort to be a legal product, something that others have ignored. Many sounds and pictures in digitized collections are copyrighted, and we will not include them on our disks. BMUG has gone to the trouble to get permission from shareware authors—no other vendor of PD software can say the same. The disk is $100 from BMUG.

The BMUG booth crew was busy working on and off the Expo floor. Raines Cohen's mother lives in a suburb of Boston, and everyone met there for a barbecue party after the show. Lightning struck outside the house, and some metal pipes in the basement created an electrical arc, setting some rags on fire! If the party had been anywhere else the house might have burned down. The BMUG volunteer Fire Department to the rescue.

Color My World Mac

It wasn't all rain on the parade at the show, and the 50,000 people that walked through the doors got their monies worth. Here are the products that remained wedged in the BMUG attendee's consciousness after a weeks recovery.

- The hits of the show were screen savers, or as Steve put it, "major advances in screen saver technology." Shark Protector by Ibis Software of San Francisco is a fully functional, interactive game, that keeps track of the score, masquerading as a screensaver. The software comes with a plastic shark fin that attaches to the top of your monitor.

After Dark 2.0 was released at the Expo. Berkeley Systems had a contest for modules, and some of them were included in the package. This modular screen saver now plays sounds along with the displays. Flying toasters (you can change the toast from light to dark), and the Fish module (beautiful on a color monitor) drew appreciative crowds.

- AddMotion by MotionWorks of Vancouver, Canada, was big news for HyperCard users. The product is a 24-bit color paint program hidden in an XCMD, that can be used within HyperCard 2.0. One of the neat things about the program is that moving color animated character/buttons can be assigned HyperCard handlers, making it very interactive. Get ready for home-brewed HyperCard-based color animated games. Other XCMD utilizing programs, Wingz, 4-D, or MicroPhone II, will be able to run wild with color animation. Your AddMotion purchase enables you to distribute their runtime, which doesn't display a obnoxious advertisement like the VideoWorks driver.
- DiskTwin by Golden Triangle was showing in the PLI booth. This definitely deserved the hardware hack of the show award. The product is a NuBus card for Mac II computers (SE/30 version out soon) that has a SCSI port out the back.

The user takes two hard drives, puts one on the DiskTwin, and the other on the regular SCSI port. Everything that happens on the primary drive is mirrored on the twin drive. Copy a big file, and the backup is instantaneous and transparent, with no degradation in performance. These parallel buses use a technology called disk duplexing, that's been used in larger computers for years. Look, Ma—the baby's duplexing!

- Compression was very big (is that a contradiction, or what?) at this Expo. Apple showed new compression/decompression software from its Advanced Technology Group (ATG) that may become part of QuickDraw, the foundation of Mac graphics. They

claimed that this incorporation might occur by the end of 1991, perhaps in time for System 8.0.

SuperMac was showing a board and software that compressed and decompressed 24-bit pictures, and video in real time. Roger Rabbit made an appearance in their booth. C-Cube of San Jose was trying to push support for its compression chip in hardware and software.

Everyone's waiting for a number of international standards groups to finalize their designs. The Joint Photographic Experts Group (JPEG) will probably finish their work this year for a 20-to-1 compression of still images. This standard can be used in video as a succession of still images at 30 frames per second. The Motion Picture Experts Group (MPEG) will bring a 60-to-1 compression factor when it's released in Fall 1991. Apple is hanging its hat on the MPEG standard, knowing that heavy-duty real time compression and decompression is the road to the Multimedia City.

- The BMUG consensus was that the significant Expo trend was booth giveaways. Some young members compared it to Halloween "trick or treat" candy begging. In return for filling-out a marketing survey, or listening to a demo, attendees received cameras, sunglasses, or clothes. One lucky BMUGer picked up around 20 different items. This marketing strategy is much like the older, fancier, and jaded commercial electronic shows, like COMDEX. A couple of Expos ago, the BMUG booth handed out condoms with our anti-viral disk, but that's small potatoes compared to squirt-guns and boxer shorts.
- Parties seem to have taken back seat to the toy giveaways. Last year's Boston Expo had a 5-page party list, while this year shrunk to only two. Even Apple didn't have a party. The parties that existed were scaled down — 1000 person parties were down to 200. BMUGers could usually count on eating dinner while party hopping, and had to dip into their wallets for this summer. Poor babies!

The MacWEEK party was considered one of the best by people that found it. The party was held in an upstairs pool room above the Club Zanzibar, a huge bar. There was a block long line to get into the club, with a tough bouncer. The only entrance to the party was through a secluded elevator near the front door. Unlucky, or unobservant, party-hopefuls that actually had invitations, hung out in the bar, paying for their drinks, complaining that a "real party" would have provided food and drinks.

- There must have been a brisk business in fake Expo passes last April, because the Boston passes had special invisible ultra-violet sensitive markings. I bet show promoters must love the new color laser printing technology floating around laser parlors. Extra badges? No problem. The poor guards, bathed in a constant purple tanning salon glow, watched people's badges as they entered the Expo. No one saw anyone caught by this over-baked patrol.

That's your tour of ExpoLand Boston. Please deposit all non-disclosure materials in the waste paper bin to your left as you exit the hall. We can only hope this is the last System 7.0-less Expo we'll have to encounter. If not, we'll take our medicine without complaining. Too much.

I asked a couple of BMUGers who went to the show if they had any interesting anecdotes. Steve and Scott came across with some slices of BeanTown.

Steve Costa: "Boston as a city is much more class conscious than San Francisco. BMUGers, and other Expo workers, who went out shopping in Levi blue jeans and tennis shoes were insulted and treated shabbily by salespeople. In the City [San Francisco] you can't make judgments from clothes and shoes — the person may have stepped out of a fancy German car on their way home from the recording studio, or their software company!

A local company that markets a CD-ROM filled with PostScript graphics flew out its entire staff of seven people. They had no signs showing the prices of their product, or of their T-shirt, that they were selling. By the end of the second day they had only sold 11 items total. They somehow thought that people would fall over themselves to get at their pictures — I gave them the Expo 'facts of life."

Scott Beamer: "My wife doesn't think this story is funny. This show I only received one invitation to a press reception, which is a sign of how light the show was. People didn't want to spend the money — last year I got six invitations. A grammar checking program said to come see the bar that was the model for the television show Cheers, and meet the representatives. They enclosed a coupon for a free drink. A pretty meager invitation, but it fit into my three party a night schedule.

I showed the invitation to the bouncer at the door, but he hadn't heard anything about it. I give the coupon to the bartender and he wouldn't accept it, so I had to pay cash. The publicist finally found me, and brought me over to a table filled with employees. She ordered a round of drinks for everyone, and said to put them on the company's tab. Again the bartender hadn't heard of it."

Top Ten Land

A few of us are competing every week with dueling top ten lists, presented to the Thursday night main meeting. Scott Kronik won this month with the the following list:

Top Ten Worker's Compensation Insurance Claims Filed at Apple Computer

10. Tainted alfalfa sprout and mung bean dip consumed at company picnic.
9. Intense nausea among staff who must proof-read Legal Department's copyrights and licenses.
8. Laryngitis from starting, then denying industry rumors.
7. Substance abuse: executives on cocaine, programmers on LSD, sales and support on disk label glue.
6. Rash from toxic printing ink used in Macworld magazine's monitor health scare issue.
5. Carpal tunnel syndrome while trying to please Virtual Valerie.
4. Jagged vision when wild bunch from Adobe spiked Christmas party punch with LaserWriter toner.
3. Recurrent nightmares of empty wasteland and meaningless void ever since Steve Jobs left.
2. Recurrent nightmares that Steve Jobs might come back.
1. Hernia while attempting to lift Mac Portable.

Shareware Shelf

The Apple HyperCard Users Group puts out a newsletter called Windoid. They're filled with articles on HyperCard, scripts, and tips for all different kinds of users. BMUG has collected the stack versions of the newsletters and put them all on a disk. Some of the stuff is a little dated, but there's lots of good help to beginners learning HyperTalk.

The Windoid stacks are available on the BMUG Windoid disk.

Apple has finally decided to let BMUG distribute ResEdit 2.0 developmental versions. The program sports a

much improved interface, and supports sounds and color.

A good informational companion to the new ResEdit is a file called HMG ResEdit Primer 5.0 by Herb M. Goodman, on our Utility 30 disk. Although the ResEdit Primer is designed around ResEdit 2.0, it can be used for any version of ResEdit. Some windows may look different, but the basic procedures and principles still apply. Herb covers adding new icons to your programs, animating cursors, and lots of fun stuff. It's in the self-reading DocTor format, and you can print it out if you wish a hardcopy.

The latest version of ResEdit 2.0 is available on BMUG Utilities #? disk.

The HMG ResEdit Primer is available on BMUG Utilities 30 disk.

November

Anyone who thinks this writing this column is a piece of cake should sit in my shorts. I'm trying to write with a constant audio overload — my stomach is growling, my wife is playing Mimi's death scene from La Boheme on the 88s in the next room, and my daughter is screaming at Super Mario on the Nintendo machine upstairs. Can I wait until Apple comes out with a notebook that I can drag under the covers? I think you will be happy with the multi-layer cake I'm going to serve you — news, tips, and hacks, covered with a BMUG frosting with a little gossip. I feel better already.

Sticking His NeXT Out

Saint Steve put on his holy road show again in September with the introduction of the latest NeXT computer models. Any time that Steve Jobs hits the stage, the charismatic Dream-of-the-Computerized-Future radiates from him, infecting everyone in hearing range. Mass hypnosis? The 21st Century Svengali? Some BMUGers talked about "smoke and mirrors" when describing the show.

Steve started the show in Davies Symphony Hall, scene of the first NeXT introduction, by confessing the four deadly sins of the original cube: too slow, too expensive, no applications, and no color. He also admitted that users had spent the first year beta testing the NeXT operating system. These problems were addressed, and more with the rollout of four new products:

- NeXTstation, $4,995 list, the new entry-level machine is a flat box, only 2.5 inches tall . Box designers call a this style "slim case," or slab design.
- NeXTstation Color, $7,995 list, a 16-bit, PostScript color version of NeXTstation. It will sport a 16-inch color monitor.
- NeXTcube, $7,995, is the new version of the original black cube.
- NeXTdimension, $3,995 list, a high-end, 32-bit PostScript color board for the cube. This card uses a 64-bit RISC-based microprocessor running at 33 MHz to really give it punch. Everyone that processes images said that this card made them drool.

All of the machines feature a 15 MIPS Motorola 68040 CPU, multimedia electronic mail system, digital signal processing chip, Display PostScript, an internal 2.88 MByte floppy disk drive, and 105 MByte hard disk drive. The painfully slow optical drives that came in the original Next cubes are "optional" in the new models. Pick up a bargain at the NeXT swap meet.

BMUG technical hounds were very impressed with the hardware. Their feeling was that NeXT has really done things right this time. The demonstration of real-time video caught BMUG multimedia nuts and illustrator's eyes. The NeXTstation is 10 times faster than a Mac IIci, and it showed.

The NeXT computer is not a computer for everyone. It combines the power of a mini-computer workstation with a usable human scale interface. Over and over Steve kept repeating the phrase, "for mere mortals," as if repetition might make it so. The NeXT requires a more sophisticated user than the Mac, but less than someone that snuggles up to a Sun computer.

Job's vision of computing has always been strong and personal. In the Mac, he implemented a graphic user interface that revolutionized computing — it gave the power to the users. He forced software producers follow his lead, instead of allowing them the easier road of chaos. The publishing and evangelizing of the Macintosh Human Interface Guidelines have lead to the Mac's success.

Job's NeXT vision is of a computer for communication—combining sound, video, and data in a single integrated work environment. You don't need to add much to the NeXT, it's all there ready to go. One BMUGer described it as "a lovely custom built automobile."

In the NeXT, Jobs gives the power to the application developer, instead of the everyday user. The NeXT gives programmers a hardware platform with a big box of toys to play with, and the software tools to get things done without killing themselves. Parts of the MicroPhone NeXT developmental version shown at the "Product Showcase" were completed in a few days. This might have taken three weeks on the Macintosh. However, most of the software publishers at the show were showing alpha, or prototype programs, that will ship in the unidentified future. NeXT hopes they will be out the door soon — they had better be.

The problems remain for NeXT — who's going to buy the machine, and where will they buy it. No one from BusinessLand was identified (or wanted to be identified) at the rollout. Steve dodged the marketing questions at the press conference. They intend to "expand aggressively" with integrators, resellers, and direct sales force. He claimed to have 15,000 firm orders for the new machines, which drew a cheer from the home crowd.

Two years have released a little hubris, and Steve wasn't riding quite so high as he did at the 1988 NeXT premiere. A BMUGer commented that there was the atmosphere of Butch Cassidy and the Sundance Kid preparing to jump off the cliff — they'll either hit the water and swim, or be dashed to pieces on the rocks below.

A Bird in the NeXT

- Jim Manzi, President and CEO of Lotus was a big hit at the show. Lotus' new product is a new spreadsheet (what a surprise) called Improv. He came out with some outrageous lines.

He started by asking three "religious" questions: "Why on the NeXT? Why a new spreadsheet? And does Bill Gates really exist? Because of time limitations, I will not be able to address the third question." H. Ross Perot, the oil tycoon, NeXT investor, and one of the few attendees over 50 in the audience, put his head in his hands when heard that, wondering what he had he done to be stuck in the company with such naughty boys! Manzi continued, "Why? Because God wanted us to," as he looked over at Jobs.

Later he said that his secret ambition for the last 10 years had been to make a presentation with Steve Jobs. "I feel like John the Baptist, I have to confess." This went over like cake to ducks with the 2000 persons filling the auditorium. It was preaching to the

converted, since BMUGers estimated that over a quarter of the crowd were NeXT employees and groupies.

- What do the NeXT machines mean to Apple? That's hard to tell. Apple doesn't have to build a NeXT machine, but they have to give users and developers enough technology to keep them satisfied. Apple is in the same place as IBM was in 1984 — no one will get fired for buying a Macintosh in today's market. It's a daring move to go "non-standard" with the NeXT best thing.

Hopefully Apple will get off its research and development behind, and juice up its high end products. The trickle-down theory seems to work in computers. Features in the cutting edge machines make their way down stream to the cheaper mass-market boxes. Let's start a wish list. And a price list!

The Mac is still easier to support than anything else on the market, including Windows. Some wise managers and single users know that the hardware purchase is just the beginning of a digital relationship. The cost of a machine and software is dwarfed by the costs of training, support, and downtime, computer-related unproductivity. We'll see how long the Macintosh can continue to hold that lead, with its scattered play-it-safe leadership.

The security for rollout 2.0 was nothing like the first. The only known gate crasher of the 1988 NeXT introduction was a BMUGer, Tom Santos, who dressed up as a waiter and walked in with the food. Tom now runs the techno-emporium MACadam Computers. Yes, they have a NeXT cube there too, along with every other high-tech toy known to humankind.

This time the door was so loose that an elderly couple of Swedish tourists strolled into the hall. The wife asked a journalist what was going on. After the explanation of the event, the woman translated for her husband, they looked at each other with a weary why-are-computers-in-the-Symphony-Hall expression, and then walked out without another word. I think the Symphony was on tour in Europe at the time. Bad timing, Båby!

After the rollout and press conference, Steve changed out of his suit and into Silicon Valley power casual, jeans, boots, and a black turtleneck. He then toured the developer booths holding hands with his unidentified girl friend, a knockout blond. At the following Thursday night BMUG meeting, Guy Kawasaki claimed that the two were married the day after the event! Good luck to the newlyweds. A female BMUGer growled that Steve's only asset is his hair. "He's got beady eyes, and chews his fingernails." Oucch!

As the ROM is Written

A couple of months ago I told you about the new Mac viruses that affect Atari computers. They concerned the use of Macintosh emulators for the Atari machines. The emulators are hardware and software combinations that require 128K Macintosh ROMs, that users must buy separately. Some local stores sell used Mac Plus ROMs, and also illegally copied chips.

In late September the following information was released by the U.S. Department of Justice in Cincinnati, Ohio:

"United States Attorney announced that a Cincinnati computer entrepreneur pled guilty to charges involving the world-wide sales and distribution of counterfeit Macintosh computer chips.

Dennis Wayne Hayes, 48 years old, entered a guilty plea in U.S. District Court to charges of money laundering, criminal infringement of a copyright, and structuring a financial transaction.

According to testimony by the Internal Revenue Service investigating agent, Hayes sold approximately 5,000 sets of counterfeit Macintosh 128K

ROM computer chips between 1988 and 1990, resulting in gross receipts of approximately half a million dollars.

To counterfeit the computer chips, Hayes purchased blank chips and removed the manufacturers name. He then had the chips silk screened with the Apple logo, copyright information and parts numbers to make them appear genuine. Macintosh 128K ROM information was copied on the chips, which he sold for $95.00 to $130.00 per set. Apple Computer does not authorize reproduction of this copyrighted material."

How long did this guy think he was going to keep ahead of the law? Did he really think that Apple wouldn't care about thousands of fake ROMs stuck in competitor's boxes? Apple has never cared about to find out who owns Macs, and what they do with them, but it didn't take advanced mathematics to see that counterfeiters were busy burning ROMs. It would have taken a plague to wipe out, and junk enough Macs to equal the numbers needed by emulator users.

Perhaps he was going to branch out into something a little more lucrative — subcontracting drug running for the C.I.A. In the raid on Hayes' house, the agents seized over $180,000.00 in cash, $2,000 in travelers checks, various semi-automatic weapons, and a small Piper airplane. It's an Iran-Contra starter kit!

Bytes and Bites

- I seem to be the only computer person that caught this strange item in Entertainment Weekly. Get ready for a new level of user-friendly computing in the television series, The New Lassie. Lassie, a dog, will use a computer!

  Lassie pushes the mouse around with her nose to make selections. The show was written by Tom Rettig, who appeared in the first Lassie TV series in the States. He claimed, "It's a pretty plausible script. I mean, we don't have Lassie working with any complicated software or anything." You mean that Lassie can't handle a flat file database?

  This is a whole new market for software publishers — dog productivity programs. Lassie might want to keep track of fire plugs, and bushes in the neighborhood. She might want to run a spreadsheet to see if her agent was dipping into her savings. There's lots of opportunities for adventurous startup companies here. Bow-wow.
- Here's this month's top ten list from Scott Kronik, programmer and author:

The Top Ten F.B.I. Misconceptions about Computers

10. The difference between RAM and ROM is that RAM has two X chromosomes and ROM has an X and a Y.
9. Loss of revenues from piracy of Microsoft products has forced Bill Gates to postpone Mom's dental work.
8. Agents infiltrating Hacker's Conference blew cover by assuming Super Mario Brothers were Mafia hitmen.
7. Believed Sculley's claim that theft of Mac source code leaves Pepsi formula as USA's sole technological edge.
6. The late J. Edgar Hoover initiated obscenity charges when he first heard a company was calling itself WANG.
5. Apple's Board of Directors includes members who know how to program a computer.
4. Nearly certain that nuPrometheus suspect is also responsible for *Twin Peaks* killing of Laura Palmer.
3. The Devil has contracted with John Draper to computerize Hell. [John Draper is the notorious hacker, Captain Crunch. Also a BMUG regular.]

2. Tried to help BMUG's Clifford Stoll track down German INTERNET spy by posting agent at local Hof-Brau.
1. When hackers share, it's theft; when company employees share, it's networking.

Shareware Spotlight

Electronic publication as an alternative to hard copy is reflected in many stacks found in the BMUG software library. Some are just information vehicles, while others break ground in their construction, and in the way they were developed.

Last Earth Day, a couple of HyperCarders supreme, Amanda Goodenough, the creator of the popular Inigo the Cat HyperCard-based children's stories, and Karen Rall, the author of a powerful HyperCard development environment, Wild Things, wondered if there was some way to extend their kids involvement in environmental education. Their children had spent many hours of class, and home time, to gather facts and create projects about pollution, global warming, and other Earth Day issues. Karen and Amanda decided to create a stack, Kids Can Save the Earth, that would share this knowledge and work with other kids, and adults.

Over AppleLink they asked if schools, classes, and individuals would like to collaborate in the stack. Teachers and parents from around the U.S. got involved sending text, pictures, and ideas for the project. Karen spent hours scanning paintings and drawings of the earth. (See Figure 6) She told me that one classes work had to taken off of bulletin boards, scanned overnight, and then returned the next day for parents' visits to the school.

The stack centers on a card that shows the Earth and its major problems. The problem words will take you to the issue, or solutions. You can also jump to related stacks — water pollution will take you to a whale saving stack.

Kids Can Save The Earth is on BMUG HyperEducation 60 disk. The set is $20

The Raster — the Story

That's all this time, kids. I'm riding a deadline, it's 12:00 midnight, and Randy Simon, Newsletter editor, is calling me up wondering why he hasn't received this yet! But there's room for a little more...

As you read in the column, Scott Kronik, Alex Lau and I have had dueling Top Ten lists at BMUG main meetings. Scott's have been the best. Here's the proof. The losers. In chronological order.

Top Ten Claris Complaints about Apple's buyback

10. *Tired of Apple Marketing V.P.s leaving the toilet seat up.*
9. *Losing special box seats at Santa Clara Giants stadium.*
8. *Who is this David Souter guy?*
7. *Don't like pushy Apple programmers who insist on pizza with anchovies.*
6. *Required to remove the word "Windows" from spelling dictionaries.*
5. *5 months isn't enough time in the slammer for Pete Rose.*
4. *Clarus the Dogcow checked into Betty Ford clinic, will miss HyperCard 2.0 introduction.*
3. *John Sculley makes lousy coffee.*
2. *We like talking about unannounced products!*

1. Life sucks.

This is from July, when Apple brought Claris back into the fold. Alex did some of these, I think (hope). The word went out that Claris would have to stop development of Windows versions of their products.

Top Ten Boston Macworld Faux Pas

10. Forgetting whether John Sculley is right or left–brained this week.
9. Taking a dozen MacWEEK bags "for friends."
8. Demanding ticket refund, claiming you thought it was an RV/Camper show.
7. Opening your umbrella indoors while at the BMUG booth.
6. Running out of business cards and writing name on slightly used kleenex.
5. Falling asleep at packaged product demo, waking up, and yelling for free gift.
4. Speeding around Expo floor in the La Cie Miata, shouting "roadhogs!"
3. Dropping BMUG Newsletter on BCS•Mac booth worker's feet.
2. Interrupting live animal sacrifice in back of Apple booth with System 7.0 question.
1. Press release stuck to bottom of shoe while trying to impress booth bimbo.

John Sculley had made a big point in his Macworld Expo keynote address on the Macintosh working the right (creative it's said) side of user's brains. La Cie has had a car give away contest for a couple of shows.

Top Ten Macworld Expo Promotions

10. Colorful Wingz celebrity rip–stop nylon air–sickness bags.
9. "WindowSucks" buttons in Claris booth.
8. Free kittens.
7. Macworld Kuwait '90 bumper stickers
6. Virtual Valerie lookalike contest.
5. Guess Guy Kawasaki's weight and win a free copy of "Macintosh Way."
4. Free "Cooking with HyperTalk 2.0" book with HyperCard beta.
3. Pony rides and cotton candy at Microsoft booth.
2. Roseanne Barr's National Anthem stack courtesy of Iraqi Embassy.
1. Jasmine hard disk signing party hosted by new CEO, Frank Lorenzo.

Top Ten Proposed Excel 3.0 Features

10. Cursor keys will operate exactly like Windows and OS/2 versions.
9. Fast cache routines will speed calculations and data loss.
8. Overweight program size incorporates new "disTend" technology.
7. Built–in screensaver displays Lotus 1–2–3 look–and–feel disclaimer.
6. Will allow hot links in a blanket on Sunday mornings.
5. Will require quantum physics course work to understand new 4–D charting.
4. Bundled with speeding ticket fine and traffic school calculation template.
3. Macro language natural to Hungarian–born top software engineer.
2. Free upgrade for registered users — when Hell freezes over.
1. Bill Gate's digitized voice says, "I could eat you for lunch, sucker."

Top Ten HyperCard 2.0 Delay Excuses

10. Keyboard has to cool down after furious coding sessions.
9. "The native drums keep beating. Pounding. I can't take it anymore!"
8. Infighting on who's going to get plum corner office in new Claris.
7. There is no delay — the Mac clock chip has a bug and is running four months fast.
6. Female programmers refused to make coffee.
5. "Late, Schmate. Just look at those features!"
4. Bill Atkinson's dog chewed up the disk with the source code.

3. "Maybe it was the booze, or worries about work. It's never happened before."
2. Whole team sent home after food fight in cafeteria.
1. "Who told you about HyperCard 2.0 anyway?"

Top Ten Laura Palmer Diary Fragments

10. Had a long walk with Raines in the woods. He gave me his tie–dye shirt...
9. I dreamt I was naked at the meeting, but people only looked at the demo...
8. Remember to ignore Billy G. on field trip to Redmond...will he drive me home?
7. If I don't help Leo, he said he'd trash my boot blocks...sounds like fun.
6. Caught WDEF at One Eyed Jack's. What will I tell the class?
5. Dad barged into my room — had to hide my Laptop and Jolt cola under pillow.
4. Then Bobby shot... {@{%... Memory Low... Application Unexpectedly Quit.
3. Shop–lifted a copy of Virtual Valerie for kicks. What does she have that I don't?
2. Saw J.L., the cute French data entry clerk at Blakie's. That earring is too much!
1. Wild sex, killer drugs, and murder. Two more felonies and I'll make valedictorian.

This set went over like the Hindenburg, and no I don't mean it caught the house on fire!. No one at BMUG other than Steve Howard and I are rabid fans of the show. Doesn't everyone turn out the electric lights and burn candles when watching the show? Spooky stuff.

My wife gave me the David Letterman Top Ten book, so I'm getting a better handle of the conceptual part of the list gags. I hope to do better in the next six months!

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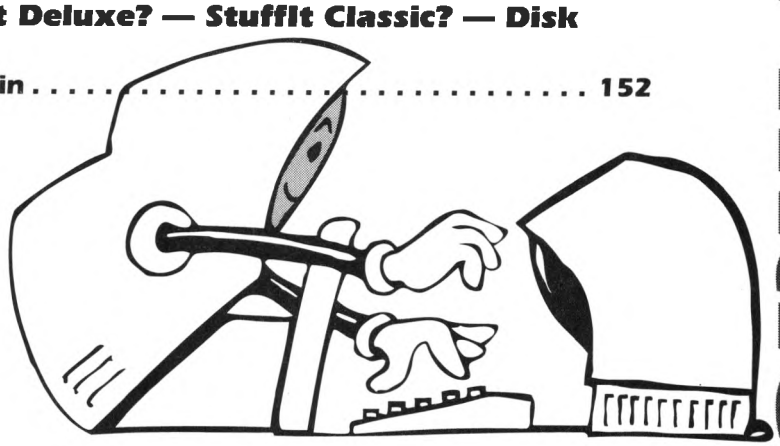

Care and Feeding of the Macintosh

Virus Management, Optimizing Performance, System Crash Recovery, and Housekeeping Chores

by Randy B. Singer

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The Macintosh computer is different than other computers. Unlike other computers, the Macintosh embraces users who are not technically inclined. The Mac's difference lies in the fact that it's very user-friendly, even user-lovable.

One problem in loving relationships, especially new ones, is that transitory problems in the relationship can lead to very hard feelings. This is how many people with a new relationship with a Mac feel when it misbehaves for the first time, betrayed and upset.

The first time my beloved Mac dropped and smashed a carefully built spreadsheet I reacted with shocked dismay: I couldn't believe that after being so easy and fun to get along with, my Mac had turned on me. I felt as if no computer could be trusted. Even worse, Macs can, like any partner in a relationship, refuse to respond, become infected with a socially transmitted virus, or just plain slow down and become lethargic.

This article is for all those people with a Mac who want to do everything they can to make sure that their Mac continues to be their best friend and never seriously strays from its lovable ways. It will tell you how to guard your relationship with your Mac. In other words, this article will tell you how to ensure that your Mac will always work reliably, at full speed, and at full efficiency.

Despite the ambitious title, this is not going to be a technical article. It addresses the specific needs of those who don't care to understand the nuances of how a Mac works. No technical knowledge is assumed or required to perform the tasks outlined here. The only knowledge assumed is that gained from using a Mac for a month or so: the basics of navigating around on the Mac and how to use its applications. All of the programs mentioned here are easy to use and come with either a help file or instructions built into the program.

Very little of the information presented here is available in the user's manuals that come with the Mac. It may be that Apple doesn't want to acknowledge that the Macintosh has to be treated like any other computer occasionally to keep it running smoothly. This article will free you from having to cull through books, magazines, bulletin boards, etc. to find the best techniques and software available to manage your Mac.

You will learn friendliness, how to effectively (and easily) deal with viruses, and easily recover from the vast majority of system crashes. Most of the programs mentioned are shareware or freeware. Shareware is a program that you can get from electronic bulletin boards or user groups and try out before purchasing it for a nominal price; freeware is a free program written by Mac enthusiasts.

A bulletin board system (BBS) is an information retrieval service that you access with your computer using a phone and a modem. If you aren't able to access the shareware and freeware mentioned here through a BBS or

BMUG BBS:
415/849-BMUG

BMUG Address:
1442A Walnut Street,
#62
Berkeley, CA 94709-
1496
415/549-BMUG

user group, you can often get a copy by sending the requested registration fee, along with a blank floppy disk and self-addressed postage-paid envelope, to the author of the program.

Most of the shareware and freeware mentioned here are available on the BMUG BBS or on floppy disk ($4 per floppy) from BMUG. If you can't get them there, try your local Mac user's group or an on-line service like America Online, GEnie, or CompuServe.

Enough introduction; on to the meat of the matter.

Recovering From Bombs

It isn't long before a new Mac owner experiences his first *bomb* message. A bomb is an error message that the Mac gives you when there has been some sort of processing error and your Mac cannot proceed. These bombs may be due to INIT conflicts, insufficient memory for an application, or a whole host of other reasons. Bombs are usually not harmful; they are just annoying, so you might as well get used to dealing with them right off.

When you get a bomb message dialogue box, it will have two buttons in it. One will say **Restart** and one will say **Finder** or **Continue**. The **Restart** button is supposed to restart your machine, the same as if you turned your machine off and back on. This button will only work part of the time. Often you may actually have to turn your machine off and back on to restart, if restarting is what you want to do. The **Finder** or **Continue** button is supposed to take you back to the desktop. This button never works, which is too bad; it would be very convenient since restarting takes so long.

There are some INITS like *Bomb Shelter* which enable the **Finder** or **Continue** button, but I have found them to be erratic in their operation and not worth having. The best shareware program to quickly allow you to recover from bombs and return directly to the desktop is *CrashGard INIT* by Raymond Lau (of StuffIt fame). This program does not enable the Finder or Continue button. Rather, it utilizes the programer's switch that comes with your Mac. Install the switch as instructed in the Mac's owners manual. Then, install *CrashGard* [by putting it into your system folder and restarting]. Whenever you get a bomb message, you only have to push the interrupt button (the farthest back of the two buttons) and you will usually be returned to the Finder. This is really a wonderful little program to have.

Housekeeping Chores

I assume you have a hard disk attached to your Mac. If you do not have a hard disk, skip to the virus section.

There are several situations that can occur on the Mac that will degrade performance or mimic a virus infection. Systematic housekeeping done on your Mac will eliminate these conditions, maintaining your Mac at its top level of performance and allowing you to rule these conditions out as the source of your problem if you suspect that a virus has invaded your software.

These conditions are:

- Multiple Systems on your startup disk;
- Desktop file too large;
- INIT conflicts;
- A fragmented hard-disk; and/or
- Too small of a system heap alotted.

Don't be alarmed if you don't understand these terms; I will explain them. [It doesn't really matter if you understand, so long you carry out the following simple instructions on how to avoid these problems.]

More Than One System On Your Startup Disk

This problem is one of the most common. It happens to a large percentage of new users. Their Mac will start doing unpredictable things and they will think that they have somehow broken their Mac. The cause and the cure of this are extremely simple. On every startup disk for your Mac, be it floppy or hard disk,

there should be only one copy of the System and only one copy of the Finder. This is the case even if you put the copies into separate folders. The System is the program that tells your Mac how to run, and the Finder is the program that tells your Mac what to make the screen look like. If your Mac finds more than one of each of these on a startup disk, it will become confused as to which to use. As a result it will act erratically.

The most common way that two Systems and/or Finders end up on a startup disk is when you get new software on a floppy disk that comes with a System and Finder on it so that you can use it as a startup disk. If you copy all the files from this floppy onto your hard disk, you will have copied an extra System and Finder onto your hard disk. The easy way to find out if this is what is causing your problems is to use the *Find File* desk accessory (abbreviation: DA) and search for *System* and then for *Finder*. If more than one of each is found, highlight both and use the Find File menu that appears when you use the Find File DA and choose *move to desktop*. Wherever they may be, the two copies of the System and/or Finder will be moved to your desktop (that is, to the far right of your screen, not in any window). Just drag one of the two copies into the trash so that you are left with only one System and only one Finder. Be sure to put the System and Finder back into the proper folder.

Caveat: Make sure that the System that you keep is the one that you have installed all of your fonts and DA's into, as the Mac's manual has instructed you to. To find out which of the two Systems is the one to keep, click on one, then choose *Get Info* from the *File* menu. Note the size of this copy and then repeat this procedure with the other System. The one that is larger is usually the one that you have installed all of your fonts and DA's into. Trash the smaller one.

By the way, your Mac's System *folder* (the folder that has your Mac's System and Finder in it) is special compared to your other folders. If you are using one of the most recent Systems, the system folder will appear with a small picture of the Mac on it if you choose to view your folders "by Icon" in the *View* menu (at least it does if the System is actually in it). Certain programs (that is, their icons) need to be put into the system folder to have them run properly. That is because they get read into RAM (Random Access Memory, or the temporary memory of the Mac while it is turned on) when you first turn on your Mac. The System looks for these programs in the system folder. These programs are mostly INITs and cdevs (explained elsewhere in this article). It is probably a good housekeeping practice not to put things in the system folder that don't need to be there.

Too Large of a Desktop File

For some incomprehensible reason, Apple doesn't adequately explain this common problem and its simple solution in the user's manual for the Mac. The Mac has an invisible file called *desktop* that carries within it a directory of all the files on your hard disk and where they are located. The problem occurs when you move your files around a lot, and add new files and delete old ones. The desktop file keeps a record of all of these occurrences and in time can grow quite large. When this file gets large enough, it can slow down the performance of your Mac or even cause bombs.

So, what can you do about it? You rebuild your desktop file! Sounds hard, huh? Couldn't be easier! What rebuilding your desktop does is to have your Mac write a new desktop file and throw away all the old useless information. You can rebuild your desktop file when booting up (i.e. starting up) your Mac, or when choosing **Restart** from the **Special** menu, or even when quitting from an application, by holding down the *Option* and *Command* keys together. When the desktop screen finally appears, you will get a dialogue box that will ask "Do you want to rebuild the desktop? This will take a few minutes." Click Yes, and the Mac will build

you a brand new, streamlined desktop. That's all there is to it. It will take a couple of minutes, and then the Mac will be ready to use again with all files closed.

The caveat to this simple process: if you are one of those who write little messages about a file in the **Get Info** boxes that present themselves when you choose an application's icon and select **Get Info** from the *file* menu, rebuilding the desktop in this way will destroy those notes [that you've kept]. Fortunately, I don't know anyone who actually uses this feature, even though it is a thoughtfully provided one. If you do use this feature there are programs, both freeware and commercial, that will rebuild your desktop without destroying this data. *Fix Desktop*, is a freeware program that will accomplish this. *DiskExpress* is a commercial program that will also do it, and it has the additional ability to defragment hard-disks, which will be discussed later.

Fix Desktop, by Anton Rang
215 S. Green Ave.
New Richmond, WI
54017
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Fortunately, the probability of this problem occurring may disappear with the release of System 7.0. System 7.0 is reputed not to use a desktop file.

Conflicting INITs

INITs (initialization programs, or software that is read into RAM on startup) are pieces of software whose icons must be put into the Macintosh's system folder. INITs function as software that modifies your Mac's interface (broadly: the windows, dialogue boxes, menus, etc. that allow you to interact with your Mac and give it instructions) or as preference files for applications you have (that is, this is where the settings that you have set for a particular program are stored) . The former type of INIT is commonly available from bulletin boards. Inevitably the day will come when you will have two INITs that will conflict with each other and will probably cause you to get a bomb message (a message that your Mac cannot proceed), or some other inconsistency, and cause you to have to repeatedly restart your Mac. If you are fortunate, your job of diagnosing this problem will be easy because it will occur immediately after you put a new INIT into your system folder. Until one of the two conflicting INITs are removed from the system folder, you will keep on getting bomb messages and will need to frequently restart the Mac. You will often have to make a hard choice as to which of two conflicting INITs to keep, as both may perform some function you like.

To find the offending INIT, the most logical first step is to take out the INIT(s) most recently put into the system folder.

Mac Rule #1: Never install more than one new INIT at a time.

If you follow this rule, then you will immediately know which INIT is a problem when a new conflict occurs: the last one installed.) You should then restart. If this cures the problem, you have found at least one of the conflicting INITs. If you still want to keep the offending INIT, try renaming it by adding an *a* to the beginning of its name (e.g. *SoundMaster becomes aSoundMaster*), and putting it back into your system folder and try again. If this cures the problem, fine, you can keep it. If it doesn't work, try renaming it again, deleting the *a* and substituting a *z*.

Renaming sometimes works because INITs load in alphabetical order and sometimes two INITs that previously conflicted will not if one of them is allowed to load either before or after the other INIT. I am told that about 20% of all INITs will not respond to this procedure because they are designed to work only if their name remains unchanged. But you have nothing to lose by trying this cure.

If removing the most recently acquired INIT doesn't help, because you have added more than one INIT at a time, you should then take your INITs out one at a time, starting with those that are shareware and/or non-essential, and restart each time, until you find the culprit. (If you suddenly have a problem and you haven't added any new INITs recently, then your problem probably

isn't an INIT conflict.) It may take awhile, but I assure you that eventually you will narrow it down to two INITs that refuse to co-exist. There is an excellent text file available from user groups or on-line services that is invaluable with regards to this subject. The latest version as of this writing is called "INITInfo 4.1: A Guide to INITs" by Gary Ouellet and Glenn Brown. This text file chronicles the known INIT conflicts.

A shareware utility that can make diagnosing INIT conflicts somewhat easier is *INIT/cdev*, a freeware program. This utility is a control panel device (abbreviation: cdev. A cdev is a type of INIT whose function can be controlled by the user through the Control Panel desk accessory, found under the *Apple* menu). *INIT/cdev* allows you to turn on and off individual INITs from the Control Panel, performing the same diagnostic procedure as removing them one by one from your system folder, without actually having to do so. Once you find the two conflicting INITs, you will be able to keep *both* INITs by using INIT/cdev to keep one of the INITs turned off while using the other.

There are commercial utilities called *INITPicker* from Microseeds and the *StartUp Manager* portion of the Now Utilities from Now Software that do the same thing as *INIT/cdev*. The one advantage that these utilities have is that they will automatically locate conflicting INITs and disable them. This is a nice feature, but unnecessary if you follow the above advice and only load new INITs one at a time.

Fragmented Hard-Disk

The term *fragmentation* of a hard-disk refers to the situation in which individual programs on a hard-disk are broken up into multiple, non-contiguous locations. Imagine listening to a song on a phonograph record, but part way through the song you have to pick up the needle and move it to another spot much further into the record to hear the rest of the song. That song would be fragmented on that record. You can see that, even if your record player automatically did the jumps from piece to piece of a song, fragmentation would cause a lot of time to be wasted skipping between the pieces to play the complete song, or, in the case of a hard-disk, a complete program. Defragmenting a hard-disk rearranges each program on the disk to be complete and contiguous so that there is no unnecessary disk searching. Better than that, good defragmenting programs put the programs that you use most-often at the beginning of the disk, and your least-used ones at the end, to save even more time. This is called *prioritization*.

INIT/cdev
freeware program
from John Rotenstein
P.O. Box 165
Double Bay, NSW
2028 Australia

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There are shareware programs for defragmenting hard-disks, but none that I personally trust and can recommend at this writing. You could effectively defragment a hard-disk by backing it up onto floppies, initializing (erasing) your hard-disk and then restoring all of your software to it from the floppies. However, this is not really practical, as it would take you hours even if you have a hard-disk as small as 40 megabytes.

It is best to get a good commercial defragmentation program like *DiskExpress* by ALSoft or *Norton Utilities for the Mac* by Peter Norton Computing, Inc. (I use *DiskExpress*, which, by the way, also will rebuild a desktop file and retain the **Get Info** comments). Such programs are easy to use, but they do require that you give them up to an hour or so to run uninterrupted. If these programs are interrupted while they are running (e.g. by a power failure or a stray child), you could permanently lose much of your data, so it is *very* important that, as a fail-safe, you backup your hard disk prior to using one of these programs.

Several of the new defragmentation programs have the option of continuously defragmenting your hard-disk on the fly (while you are doing other work). This can be disconcerting as your disk will be constantly cycling even when you are not doing anything.

There have been reports that background defragmentation with some applications has

caused problems, and you can encounter severe problems if you have a power outage while the hard-disk is in the process of defragmenting in the background (which it may be doing at any time).

This can even be in the middle of the night, using a macro program like QuickKeys' QuickTimer [from CE Software] to launch the defragmentation program at a set hour.

Many long-time Mac users have expressed the opinion that it might be safer to do without this feature and use the old routine of waiting till the end of your work day, doing a backup, and then running a defragmentation program during a period that the Mac is otherwise unused. This way you will always have an up-to-date backup if the disk defragmentation procedure doesn't go smoothly.

It might be safer, though not necessarily fast or fun

By the way, if you have been using a computer for any period of time, you know that it's important to do backups of your hard-disk *often*, *Right*? If not, I'm telling you now: do it!

Mac Rule #2: Back Up, Back Up, Back Up!

A backup is cheap insurance against notoriously common (and potentially disastrous) hard-disk problems. A good commercial back-up utility like *Diskfit* by SuperMac, or *Redux* by Microseeds, or *Fastback* by Fifth Generation Systems, Inc., will make the job easy.

The disadvantage to compression, though, is that you cannot simply transfer a single file or application straight from a backup floppy onto your hard-disk without running the application used to do the back-up.

Fortunately, after you've done a backup once, you can do an incremental backup in just a few minutes at the end of each day. This is where commercial backup programs have two major advantages over the backup program that comes free with your Mac. First, they will automatically erase old versions of files from your backup floppies, replacing them with the new versions, and conserving floppy space. Second, some commercial backup programs, like *Retrospect* by Dantz Development Corporation, will compress your software before putting it onto the floppies, thus further reducing the number of floppies needed for a backup. I currently don't know of any shareware backup programs that are worthwhile. I have heard of one called *VolumeImage*, but I have no experience with it. If anyone does have experience with it, I would appreciate a post to me about it on EchoMac.

Locking a floppy disk is done by flipping-up the write-protect tab on the floppy so that you can see through the square hole.

A very important rule to remember is: Keep your original application disks *in a separate place, away from where you work with your Mac* and lock them as a fail-safe!

Keep your backup disks in a third separate place, away from your Mac and your original application disks, preferably under lock and key. That way, if the worst happens (a fire or theft) and your hard-disk is gone, you still will have all your software. (Your Macintosh, without all the software and files you have carefully built up over the years, is like a college graduate starting over in Kindergarten).

System Heap Size

The Macintosh allots a certain amount of the total installed RAM to be used by the programs in your system folder (the operating system, INITs, cdevs, fonts, and DAs). This alloted memory is known as the system heap. If you are using a recent System and Finder, look under the Apple menu while at the finder level and choose **About the Finder**: you will see two bars. The one that says *System* will have a black area filling part of the total area of the white bar. If the black area takes up over about 80% of the white bar, then you may be getting occasional errors, or bombs, or *out of memory* reports while working on your Mac. This is caused by having too many things in your system folder that stay resident in RAM.

Since, like most of us, you probably want to have your cake and eat it too, you may not want to give up some of those INITs that you love so dearly. What you need to do is allocate more system heap for your system folder. This is easily accomplished with a commercial utility called *HeapFixer* from CE Software or a shareware utility called *HeapTool* by Kerry Clendinning.

HeapTool
Kerry Clendinning
P.O. Box 200937
Austin, TX 78720
$12.50

Caveat: Adjusting the system heap should only be attempted when all other possible causes for your problems have been ruled out, including viruses. There have been reports that some users have had difficul-

ties caused by these system heap adjustment programs. Many of the reports say that the difficulty was caused by using one program, then the other. Therefore you should stick to only one of the two. Just so you know, I use a Mac Plus with a boatload of INITs in my system folder and over 90% of the white bar filled in the **About the Finder** info box, and I have never experienced any ill effects from this. So a word to the wise: unless you have ruled out problems due to anything else covered in this article, stay away from your system heap. And of course, if you aren't having any problems at all, even if you have a huge number of INITs, "don't fix it if it ain't broke," because the cure can be more trouble than the problem.

HeapFixer comes with *QuickKeys* from CE Software, a commercial program; it is not freeware or shareware, but it *is* available free from the CE Software section of America Online BBS, for those who subscribe to that service. *HeapFixer* is also available on GEnie, another BBS.*

Using either of these heap setting programs is easy; they have simple instructions that tell you how to set the system heap to about 30% larger than the memory currently required by your system. Keep in mind this may be impossible if you only have one megabyte of RAM. If this is so, and your system heap is too small, you either have to get rid of some INITs or get some more RAM. Fortunately, as of this writing, SIMM prices have fallen all the way to around $40 per megabyte from over $400 just a short year ago, so there is little reason to delay upgrading to more RAM.

Now Software has come out with version 2.0 of the commercial *Now Utilities*. *StartUp Manager* in the *Now Utilities* can adjust the system heap in a much more reliable way than the above mentioned programs.

With these common problems out of the way, I can tell you how to easily recover from many system crashes. But first we must deal with one last possible problem...

Viruses

If you have been part of the IBM/clone world or if you know others who are, you probably shiver when you hear the term virus in association with your Mac. Let me say straight-out that viruses are just not that big of a problem for Macintosh users. There are only, as of this writing, ten or so Mac viruses, and none of them is seriously malicious. Furthermore, they can all be easily detected and eradicated with one piece of software that is both free and readily available. When I wrote the first draft for this article it was a problem choosing among the many Mac virus-detection and virus-eradication programs available to recommend. There are many good (and bad) anti-viral programs available, both free and commercial.

This confusion was eliminated when John Norstad introduced version 2.0 of *Disinfectant*. Version 2.0 of *Disinfectant* introduced the ability to search for viral infections seamlessly, turning an excellent anti-viral utility into the best there is. *Disinfectant* is now up to version 2.4 and is freeware available from user groups and BBSs.

Unless your Macintosh is used by the public, *Disinfectant 2.4*(or a later version if available) is all that you need. New, updated versions of *Disinfectant* are available on BBSs and from user groups within days of the identification of a new virus.

If you rent out time on your Mac to the public, I recommend the commercial programs *S.A.M.* [*Symantec Anti-Viral for the Mac*] by Symantec, or *Rival* by MicroSeeds Publishing, Inc. The one reason that these commercial programs might be more suitable is that when they detect a virus, they automatically remove it. *Disinfectant* requires that you eliminate detected viruses by launching its application and clicking on *disinfect*. The fact that the commercial programs do not require any action at all from the user make them more appropriate in an environment where the users may be unfa-

*Now that you have an excuse, you really should check America Online out; it has a great Mac-type interface, and it's fun and addicting, although it can get expensive. Call 1-800/227-6364 for information about subscribing.

Single In-line Memory Module; the snap-in units that RAM chips come mounted on.

Technology Works, at 800/688-7466, often has the best price available for SIMMs. Unlike other memory sellers with low prices, they even take credit card orders.

miliar with Macs and unable to launch the *Disinfectant* application. The drawback to the commercial programs is that you must wait each time that they search for viruses, unlike *Disinfectant*, which works invisibly. Also, the commercial applications are quite expensive, while *Disinfectant* is free.

I will not go into the background of all the viruses, what they do, how they work, where they came from, etc. That is beyond the purpose of this article and is covered thoroughly in the instructions for *Disinfectant 2.4*.

Let me briefly re-emphasize here that there is no need for paranoia when it comes to the issue of viruses on the Macintosh. I have talked to some people who are so afraid of viruses that they will erase their entire hard-disk, reformat it, and restore all of their software to it, every time that they detect or even suspect a virus' presence. That is simply not necessary! Viruses can be easily and *completely* controlled by the anti-viral programs I have mentioned here. So, take a deep breath, and *relax!*

In the past, there have been reports of even brand-new shrink-wrapped software carrying viruses.

Caveat: There are several marginal anti-viral utilities available, mostly as freeware, some of which, if used first, will make it hard for a good anti-viral program to do its job later. So be aware that more isn't better; stick with just *one* of the anti-viral programs I've recommended (usually *Disinfectant*) and you'll be fine.

Using the Rescue Disk that we will make to do this — a description follows in next section.

Directions for *Disinfectant* are in the program itself, under the Apple menu (it's very easy to use, don't worry). *Disinfectant 2.4* very effectively does what used to require several different programs: it will scan for, and detect, the presence of viruses, and remove any viruses found. Starting with version 2.0, you can install a protection INIT into your system folder, inoculating your Mac against any future viral infection.

Except for viruses that have yet to be written. Protection from these will require future versions of Disinfectant, which are released within days of a new virus identification.

You should use the Scan and Disinfect functions of *Disinfectant 2.4* on every hard-disk and floppy you have.

For more information on using Disinfectant 2.4, see System Crash Rescue Floppy, and Virus Control Floppy. How To Make and Use below.

After using *Disinfectant 2.4* to cleanse all of your disks, go to the **Protect** menu and have the program put its protection INIT into your hard disk's system folder and restart. The INIT works automatically and invisibly and will notify you and prevent future attempts by any virus to infect your Mac.

This is really all you need to do in terms of virus protection. To be extra careful, you can scan for viruses with *Disinfectant's* main application whenever you get new software or you can scan other people's floppies before you use them in your Mac, but if you don't, don't worry.

Caveat: When using the latest System from Apple (System 6.0.4 and later) it is absolutely necessary to replace the System file with a fresh copy after *Disinfectant 2.4* removes an infection by the Scores virus.

Another caveat: No virus program can detect viruses within compressed archives (e.g. *Stuffit, Compactor, Diamond, DiskDoubler, PackIt*, etc.). However, the new *Stuffit Deluxe* by Aladdin Systems scans for viruses while opening and compressing *Stuffit* archives. Fortunately, no current virus is active while it is in an archived state. So, you will be safe until you decompress your archived programs, at which point your anti-viral software should detect the presence of any viruses. Just be aware that old archives may harbor infections that have gone undetected.

Some commercial anti-viral programs have some limited ability to protect against new viruses that may be written in the future, and some can detect Trojan horse programs. As noted, a new version of *Disinfectant* is usually available days after detection of a new virus, so its inability to protect against as-yet unwritten viruses is not a big disadvantage. Trojan horse programs are not viruses, since they are not self-replicating. Trojans are programs that masquerade as useful programs, but are actually maliciously destructive. Trojans are rare, since they are destroyed by bulletin boards and users after having been found out. They are easy to deal with: in the unlikely event that you encounter one of them, since their names are well known, all you have to do is avoid

them. The Trojans that are out there to date are: *Mosaic, FontFinder, Steroid,* and a *Hypercard* stack called *Sexy Ladies.*

Recently there has been talk of an annoying Trojan that modifies the server password of your Postscript laser printer, incapacitating your printer and requiring an expensive replacement of your printer's EPROM to fix it. A shareware inoculator does exist, *PostScript Vaccine 1.0.3*, which works by modifing the Laser Prep file that comes with the Mac (Versions 5.2, 6.0, 6.01, 6.0.2) to intercept the Trojan Horse before it does its damage.

Another utility I have heard of is *ClearPassword.*, which is used after the printer's password has been changed by the Trojan. It then allows you to set a new password (or even *no passowrd*) on your LaserWriter.

How to Make and Use a System Crash Rescue and a Virus Control Floppy

You will be making two floppies here; lock each one *immediately* after you make it.

- Install a *Minimal System* on the floppy by using the Installer script on your original (and locked) System Disks
- Copy onto this disk *Disinfectant 2.4* (or a more recent version, if available)
- Label this floppy **Rescue**
- Using **Rescue** as your startup disk (by inserting it into your drive before you start your Mac), scan your hard-disk using the copy of *Disinfectant 2.4* residing on it, and remove any viruses found.
- To check to make sure a virus hasn't moved over to this new disk, restart using your hard-disk and use a copy of *Disinfectant 2.4 ,residing on your hard-disk*, to scan (and if necessary remove) any viruses from the floppy. You will have to eject and unlock the floppy if it is necessary to remove any viruses from it.
- On another floppy put: *SCSIProbe* (freeware by Robert Polic); *DiskFirstAid* (comes with Mac); and the System and Finder directly from the system folder on the hard disk of your Mac (but only after you have run *Disinfectant 2.4*, as outlined above, on your hard disk to make sure the System and Finder are not infected)
- Label this floppy *Rescue Disk.*

The System file carries your Mac's assortment of installed fonts and DA's, so it is necessary to replace the copies of your System that you've just put on these floppies with the latest version each time you make a change in the installed fonts and DA's in the System on your hard-disk. But, once again, only do so after scanning with *Disinfectant 2.2*. The object is to have a clean, up-to-date, backup of your System file on more than one floppy. Also, in order to be able to use SCSIProbe, the *Control Panel* desk accessory should be installed in your System file. (Almost every Mac's System should already have this done. If the Control Panel appears under the apple [desk accessory] menu on your Mac, it is installed). Keep these disks locked *always* (except, of course, when updating the System files on them.)

Right after you have done the above, you should run *Disinfectant 2.4* on *every* floppy you own. Use a copy of *Disinfectant 2.4* that resides on your hard-disk. Launch *Disinfectant 2.4*, insert a floppy, click on the drive button until the inserted floppy's name appears, and click on the Scan button and, if necessary, the disinfect button. After you are done with a floppy, click on the Eject button, remove the old floppy and insert a new one.

If anyone has any experience with this Trojan or any of the protective programs, I would appreciate a post to me about it on EchoMac or a letter via the mail.

When Your System Crashes

When your system crashes (that is, if you have a problem with your Mac so that it will no longer function normally, such as repeated bombs, or you get sad Mac icons, or you can't boot from your hard-disk), first, consider the possibility of an INIT conflict or

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the possibility that you need to rebuild your desktop file.

If this doesn't seem to be the problem, restart the Mac with your (locked!) **Rescue Disk** floppy as the startup disk. If the icon of the hard disk does not appear on the desktop, use *SCSIProbe* (in the control panel) to remount the hard disk by clicking on **Mount** and then restart the Mac, this time using the *Disinfectant 2.4* floppy as the startup disk.

- Scan for viruses on the hard disk using *Disinfectant 2.4*. Remove any present.
- Eject the *Disinfectant 2.4* floppy and insert the **Rescue Disk** floppy again, and restart using it as your startup disk.
- Run *DiskFirstAid* on the hard disk, and make repairs if necessary.
- If you suspect that your System and Finder have become corrupted, reinstall them by restarting using the System Tools disks.
- Restart, using your hard disk as the start up disk, and rebuild the desktop.

This procedure should cure the huge majority of system crashes that are not due to mechanical failure.

More severe crashes, in which the data on your hard-disk has become corrupted, will require a commercial disk-recovery program like *SUM II* by Semantec or *Norton Utilities for the Mac* by Peter Norton Computing. These programs each have a utility that creates a special directory on your hard-disk which, if used routinely *before* any hard-disk trouble occurs, will make recovering a corrupted hard-disk easier. Also, some user groups, like BMUG, have free hard disk recovery service for members. As a last resort, there are commercial hard-disk recovery services, listed in the yellow pages in major cities, or in the back of major Macintosh magazines.

Setting Bundle Bits

Every now and then while you are using your Mac you may notice that double-clicking on the icon for a document created by an application will not open that document. You may also find that some of the icons of documents created by an application have become generic icons rather than the specific icon that designates a document created by that program. This is caused by the setting (or the lack of same) of something called bundle bits. Sometimes they become unset or are missing from a document, and this leads to the above problems. A freeware application called *BundAid*, by Jim Hamilton, which automatically checks the settings of your bundle bits and properly sets (or un-sets) them.

BundAid
Jim Hamilton
2914 Afton Shire Way, #13102
Austin, TX 78748

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Repairing Floppies

Occasionally the programs and/or files on a floppy become corrupted. Fortunately there is a really good shareware program called *FloppyFixer* by Frank Beatrous, that can often salvage your data and programs.

Another useful shareware program is an INIT called *BAD 1.1* written by Giuseppe Garnevale. This wonderful utility will take a floppy that previously could not be successfully formatted, and map and lock out the bad sectors on it (though such a floppy, once fixed with *BAD*, will have a marginally smaller capacity than a perfect floppy). A really neat use of this program for penny pinchers is to take single-sided floppies, which can be purchased very cheaply nowadays, and to format them as double-sided. *BAD* will lock out any bad sectors (if any exist) and the result will be floppies that format with the capacity of double-sided floppies (or very close) at the price of single-sided floppies.

Frank Beatrous
309 Barnes Street
Pittsburgh, PA 15221
(donation requested to:
Lupus Foundation of America, Inc.
1717 Massachusetts Avenue N.W., Suite 203
Washington, D.C. 20036)

BAD 1.1
Giuseppe Garnevale
via Niutta 36-80128
Napoli, Italy
$20

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You now have the tools to keep on Mac'in in high gear indefinitely. Remember: back-up religiously; use a good anti-viral utility; defragment your hard-disk as necessary; and rebuild your desktop file periodically. Update your *Rescue Disk* and *Disinfectant 2.4* disk whenever you make changes to your System file or a new version of *Disinfectant* is released; and you will be prepared to successfully handle even the worst scenario that can happen. Good luck!

Shoestring Mac

by Carl Anderson

Macintosh computers are great, but up until recently, they have been pretty expensive. And it's not just the computer. For example, a recent article talked about new

printers for under $2000. That's all very nice, but what about folks for whom $2000 is an awful lot, not just for the printer, but for everything — Mac, software, printer, advice, everything?

Suppose you're a small business or a church or a student who wants a Mac, and suppose it is more important to get a good, workable system at minimum cost than to get the most powerful solution. Suppose you're pretty new at Macintosh. Then this article is for you. We won't talk about nice but expensive things. We will talk about systems costing way under $2000, and we'll try to be intelligible to beginners.

The first question in buying a computer is, will it do what you want? We assume you will want to write something on it — perhaps letters, newsletters or term papers, and perhaps draw up budgets, maintain mailing lists or do simple graphics. You may also wish to add other interesting capabilities at low cost.

Mary's system

My friend Mary recently got a system for her small business. It's very much like the one described in System A below. It's a good, capable system, and for the purpose of this article it will outline the highest prices you might wish to pay. After we describe it, we'll consider how its cost might be reduced, and what features would be lost in doing so. Costs are current "street prices" available to the careful shopper, and lower prices are often available if you are a student or a nonprofit organization.

System A

Hardware

Mac Classic — about $1300
2 megabytes of memory, 40-megabyte hard disk drive, keyboard, mouse (from a computer broker)

Hewlett-Packard Deskwriter (ink-jet printer)
(resolution 300 dots per inch) with cable
about $720

I'm using the word memory to refer to dynamic random access memory, or RAM

Software (applications)

Microsoft *Word* version 4.0 A word-processing program	$250
Microsoft *Excel 2.2* A spreadsheet program	$240
101 Macros for Excel Helps to use Excel more efficiently	$60
FileMaker II A database management program	$220
Any game	$30
S.A.M., vers. 2.05 A virus-protection utility:	$60
Super Laser Spool A background printing utility	$100

from an Apple dealer or discount software/ accessories dealer

Initial stocks

Paper, FDHD diskettes, spare ribbon	$50
The Little Mac Book by R. Williams	$13
A book on *Word*	$20
A book on *Excel*	$20
Total	$3083

Some good features of this system are; highly standardized programs, supported by software publishers and others; very high quality printed output; powerful software; the FDHD floppy disk drive on the Classic can read and write older Mac disks of 400k and 800k capacity, as well as the newer FDHD disks of 1400k capacity; you can add a lot of other software without upgrading the whole system; it is convenient to use; it includes a game (all work and no play makes the Mac a dull gray!)

Some limitations set by the budget are; screen size is the standard compact-Mac 9-inch screen, rather than anything larger; the system is black-and-white, not color; in a few situations (spell checking, spreadsheet calculating, etc.) the computer will be slow; the printer is somewhat limited in font selection, graphics (ink jet printers tend to smear solid black areas) and speed; the printer is not of the PostScript sort that produces the highest quality output; Microsoft *Word* has some notable oddities at the user interface, despite its best-selling status.

Can you do it cheaper? What do you lose?

Money buys capability, and buying more cheaply than System A results in loss of convenience and features. However, most users in the small-business or non-profit community do not need all the capabilities of this system. We will discuss the costs and capabilities of individual items, and then assemble two cheaper systems, listed as System B and System C below.

The Mac itself creates the biggest expenditure. Let's see if you can buy something cheaper than a Classic 2/40 and still meet your needs. We will look at the one Mac currently being shipped by Apple which is cheaper than the Classic 2/40. This is the Classic 1 with only 1 megabyte and no hard drive. We'll also look at older Macs that may be available used or (for nonprofits, especially) donated.

The Classic 1 is an excellent buy since 1 megabyte gives sufficient capacity for most currently available programs, including the ones listed for system A (you can check this with your software supplier). Programs will run faster with 2 megabytes, and some programs need it to run at all. However if you discover you need more memory later on, it is possible to add it to a Classic for $150 or so.

Another difference between the two Classics is the hard disk drive. You do need a hard drive — running a Mac without one will be noticeably less convenient. However you can get hard drives for as low as $320 new, and it is possible to buy them used or have one donated. The only real essential is that the hard drive work with your Mac, either internally or through a plug called a SCSI port. If you buy a hard drive separately, be sure you also get formatting software, and that you can get it to work with your Mac - some drives work fine with IBM clones but not with Macs.

Nonessential but desirable features of your system include larger capacity, higher speed, quietness, and reliability.

The capacity isn't really critical. Many users prefer 100-plus megabytes, but it is possible to get by with as little as 10 by storing less-used items on floppy discs. (Please note - two floppy disc drives are not really a substitute for a hard disc - better to wait until you can afford the hard disk). Speed is desirable, but any drive that hooks up through the SCSI port will do the job. Quietness can be obtained by putting a noisy disc drive into a nearby closet. Reliability matters more, but even if the drive were

perfection itself, it would still be subject to theft, fire and other disasters. Any truly valuable data should be also stored on floppy disks which are kept elsewhere.

If the cost of a new hard drive is too high for you, you could take a chance on a used hard drive. Used computer dealers don't like them because reliability is a problem. A shoestring approach would be to gamble on one bought at a swap meet for $50 or so.

If you can't afford a new Classic, you will enter the world of used computers. There are a lot of good used computers around. You can read a book on this subject such as "Alex Randall's Used Computer Handbook" by Randall and Bennett, Microsoft Press, 1990. The cost is $14.95. In this article I have omitted many of the points made in that book, discussing only items that seem to me of particular relevance

During the period 1986-1990, Apple made two computers that were very similar to the Classic, the Plus and the SE. The main difference between these three is in the floppy drives and hard drives. Both the Plus and the SE came with 1 megabyte of memory, easily expandable to 4 for about $160. (Used computers will often have this upgrade already installed.) The heart of each of these computers is the same 68000 microprocessor or CPU chip. (Another Mac, the SE/30, with the 68030 microprocessor, comes in a similar box but is so much more powerful that we shoestringers can't afford it.) The Plus is slightly slower than the SE and the Classic.

The Mac Plus came with just one floppy disk drive. Many users got an external hard drive to go with it. Sometimes a hard drive was shoehorned into the Plus's box, which works, but not as well as an external drive.

The type of floppy disk drive is a major factor. The Plus and several versions of the SE used the same floppy drive, which usually reads 800k disks and the older 400k diskettes, but can't read the newer FDHD diskettes. Software will soon be published on FDHD disks as standard, and you may have trouble special ordering software on 800k disks. One solution to this problem is to use a Classic or SE/30 to move data from FDHD disks onto 800k disks; the FDHD drive can also read and write 800k disks. The FDHD disk drive on the Classic is useful both for future software use and if you wish to trade data with someone who has an IBM-type computer.

Two older Macs have half a megabyte of memory (512k), the 512k or "Fat Mac", and the enhanced model, the 512ke. The 512k and 512ke can run a lot of older software, which you may be able to find cheaply (see below). Among currently sold programs, the word processor program Write Now from T/Maker, and some others, can be made to run efficiently on these machines. To do this, you may also need a second floppy drive. The 512k, as shipped by Apple, did not have the SCSI port that is needed for use of a hard drive.

However, 512k of memory seriously limits what programs can run. Furthermore, it is more expensive to add memory to them than the Plus or the Classic. Upgrades are available, but the cost of upgrading is economical only in some circumstances, such as having a donated 512k.

The *Fat Mac* has two more limitations than the 512ke:

1. it can only read one side of a diskette (400k) and,
2. due to a its 64K ROMs, it can only run older system software.

The original Mac from 1984 had only 128k of memory. These machines are useful only if you can live with their original software augmented by certain shareware programs and a few old programs you may be able to find. A 128k Mac, running the original word processor MacWrite, would be useful for high school students, for example.

For example, Microsoft Works 2.0 cannot run because it needs 1 Meg.

One remaining computer from the mid-80's carried the Macintosh name, the Mac XL, or "Lisa". This is a dinosaur, but pretty powerful if you can find accessories and software.

Printers

After your computer and disc drive, the other major hardware item is the printer. For those on a budget, the most common decision is to get a 9-pin dot matrix printer similar to Apple's Imagewriter II. The non-Apple printers most often used are the Olympia NP30, $270 new, or the slow but reliable Seikosha SP-1000AP, for as low as $200 new. You can get very good text printing from these, especially if you choose your fonts carefully. They will also do graphics. If you have 2 megabytes of memory, when it becomes available you will be able to run System 7, which is rumored to include further improvements on the printing quality of dot matrix printers.

When you need better printing quality than an ink-jet printer can provide, you can compose your item on your own machine, go to a desktop publishing shop and rent a Mac with a top-notch printer for $4 to $10 per hour.

A package of these items is available for about $350 with a used printer, or $450 new from:

Quality Discount Computers
135 Artist View Dr.
Wellington, NV 89444.

You might consider a daisywheel printer if you need really crisp letters but no graphics, you can live with a very limited selection of type styles and sizes, and budget limitations are critical. No true Mac buff would be caught dead with a daisywheel printer, but true Mac buffs have been drawn from those who started small! Among daisywheel printers, the ones Apple sold for Apple II-series computers are the easiest to adapt to Macs. Many other daisywheel printers are, unfortunately, not easily connected. You will also need a special software program such as Mac Daisy Link and a cable.

Software

A major, cheaper alternative to buying several single programs, such as *Word* or *Excel*, is to buy an integrated program. The best known of these is Microsoft Works, which gives outstanding value for money, the current cost being about $190 from discount software dealers. You might also consider the package SmartBundle, which has better graphics and is similar in cost. Works includes a word processor with spell checker and merge, a spreadsheet, a database and much more. However, while it is cheaper, there are some disadvantages. Compared to the combination of *Word*, *Excel*, and *FileMaker*, Works runs more slowly in some situations and lacks a number of detailed features. For example, its spell checker dictionary is smaller than the one in *Word*.

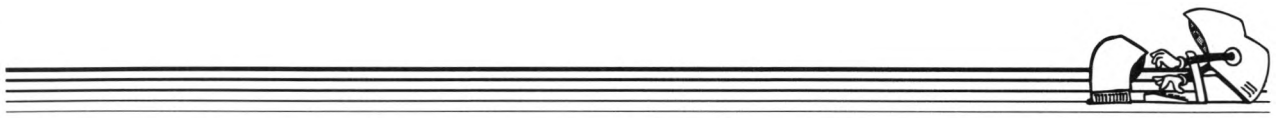
Another approach, to put it bluntly, is to steal software. I'm hoping you won't.

A third approach is to buy less standard software. You can often get much better value for money, in terms of features, by buying software that is less popular.

A fourth approach is to buy used or outdated software. At a recent swap-meet I bought a copy of Superpaint 1.1, with the instruction book, for $20. It's an old version - I wouldn't try to call the software company for help in using it - but it works fine on a Mac Plus with System 6.0.4.

When buying old software, there are three factors to be aware of. First, if the software has ever been registered and you want to get any telephone help from the software company, you should have the seller give you a statement of transfer of ownership; not all software companies will accept it, but some will. (See the "Used Computer Handbook" for details.) Second, consider copy protection. Unlike most modern software (except games), older software may have full copy protection, in which case it will be cumbersome to back-up those disks. The third factor is system software. You may need to get a set of older system software to run some older programs. This low-price item is available from BMUG. (If you need two sets of system software, don't put them both on your hard disk.)

Finally, I've got to mention the shareware/freeware area. This is outstandingly useful for printer fonts, games and utility programs. One utility program stands out in particular, the virus-fighting program *Disinfectant*. You can get the latest version from



BMUG for $4. (Updates are frequently needed as new viruses appear.) A second example is the spreadsheet program Biplane, available from BMUG for a shareware fee of $40, plus BMUG's $4 diskette fee. This is much cheaper than *Excel* or other spreadsheet programs from computer stores. Another example is MacMailing for $24, which is used for mailing lists and includes mail merge.

Advice

It's a great help to find friendly people with similar machines who are willing to share information. Another source of help, advice and information is BMUG. At $40 per year, membership is one of the better bargains in the computer field. Also, look for for used Mac books and magazines. I know of one local computer store which sells recent magazines with torn covers for 50 cents

Low-budget Solutions to Special Problems

For those with limited eyesight needing special screen displays, try *CloseView*, included with Apple Utilities

Special Typefaces

Spanish, French, Swedish, Russian, Korean, etc. — letters like ñ, î, ç, and å: Explore with the option key in the desk accessory Key Caps. Almost any language with alphabets has a font available from BMUG for $4

Statistical calculations — the program *Mystat*, $5, is a fully-working statistical package.

Putting It Together

System B has most of the basic capabilities of System A, and can be upgraded in many respects if needed. System C gives a strictly-from-hunger approach, but you might be able to manage with it. You can of course mix and match the Systems presented in this article to meet your particular set of needs.

System B

Systat
1800 Sherman Ave.
Evanston, IL 60201

Hardware

Used Mac Plus *including a full set of manuals, a short-term warranty, etc.*	$700 from dealer
Upgrade memory to 2.5 megabytes	$80
Ehman external hard disk drive *new with cable*	$320
Olympia NP30 Printer	new, $270

Software (applications)

Microsoft *Works 2.0*	new, $190

BMUG does not generally recommend Works since we believe the stand-alone versions of the various application provide better service and reliability to the end user. — Ed.

Software (utilities)

MackPackage *from CE Software, includes print spooler and lots of other features*	new, $40
Disinfectant, 2.4	BMUG Util. 8, $4
UnStuffit Deluxe	BMUG Tele A1, $4
Games, 1 disk	BMUG disk, $4
Screen saver	BMUG disk, $4
Fonts *such as screen fonts for preparing files to be printed on a rented Mac with a PostScript printer, (2 disks' worth)*	2 BMUG disks, $8

Initial stock

floppy disks and paper	$50

Books

Alex Randall's Used Computer Handbook	$15
A book on *Works*	$20

Total $1709

System C

Hardware

Mac, model 512, used $350
with manuals and some limited sort of guarantee. From dealer.

External 400K floppy drive, used $100
or archaic (mid-1980's) hard drive that doesn't use SCSI port, from swap meet. From dealer.

Seikosha Printer $200
or borrow a neighbor's printer when you have to print

Software (applications)

WriteNow 2.2 $120
bought new at discount software dealer, you return disks to publisher after purchase to get them replaced with 400K disks

BiPlane Spreadsheet BMUG, Bus. 2, $44

MacMailing $24
Mailing list program (a simplified database)

UnStuffit BMUG, Tele A1, $4

Total $782

Useful sources — Bay Area

Used computer dealers

Used Computer Store, Berkeley 548-8686
Gigabytes, Newark (Calif.) 790-0961
Elite, Cupertino and Emeryville
Berkeley Computer 526-5600
Want ads - Chronicle/Examiner, Mercury News, and two freebie papers, Computer Currents and MicroTimes

Discount software

also printers and other peripherals and accessories -

M. A. C., Berkeley 644-0500
ComputerWare 6 stores; somewhat more expensive but still useful

Mail order

see MacUser or MacWorld for ads

Outdated or used software

Used Computer
Gigabytes
Herb's Discount Software, Fremont

swap meets

see Computer Currents, MicroTimes

The $24 Tip

by Randy M. Zeitman

Did you ever wish someone manufactured memory in smaller chunks than 1 megabyte for just such an occasion as pictured here? Not having that extra little bit of

memory when you need it can really put a damper on running an extra program in Multifinder.

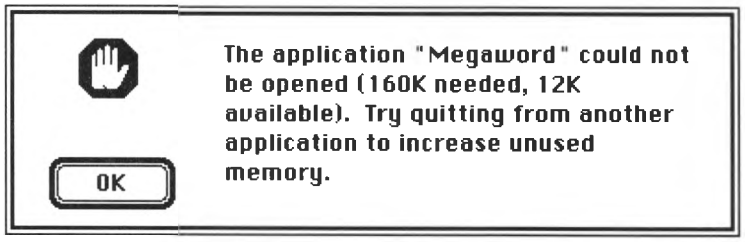

The application "Megaword" could not be opened (160K needed, 12K available). Try quitting from another application to increase unused memory.
OK

Figure 1

Will 160K of free RAM do for a start? Walking through the following tip will show you how to write a Mac program to create an extra 160k of RAM when launched. No experience necessary.

Background

When you launch launch a program in Multifinder, the program occupies a well defined amount of your total RAM space available. To find out how much, highlight the icon of an application which isn't currently running, and choose **Get Info** from the File menu. Here's a typical Get Info window.

In addition to items like size and version, you'll also see an Application Memory Size at the bottom. Although this value is editable, don't worry about why or when it should be changed. Just understand that this value is how much memory the application occupies when launched. In this case, SuperPaint 2.0 will occupy 700K. (If the program was currently loaded and you selected **Get Info**, you would see a value of "n/a", not/available) Conversely, quitting SuperPaint restores 700K. So what does this have to do with free RAM?

The Finder happens to be an application just like SuperPaint, PageMaker, MacDraw, or Excel. One big difference is that the Finder doesn't have a Quit command. It automatically quits when the Mac shuts down. If we can circumvent this and make the Finder quit at will, we gain whatever RAM the Finder occupied while it was running! How much RAM? If we Get Info on the Finder, it shows that its Application Memory Size is 160K. Just as quitting SuperPaint restores 700K, we gain 160K by quitting the Finder!

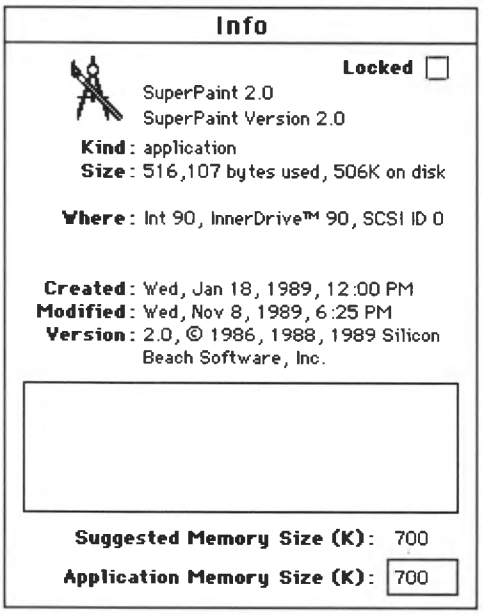

Info
Locked
SuperPaint 2.0
SuperPaint Version 2.0
Kind: application
Size: 516,107 bytes used, 506K on disk
Where: Int 90, InnerDrive™ 90, SCSI ID 0
Created: Wed, Jan 18, 1989, 12:00 PM
Modified: Wed, Nov 8, 1989, 6:25 PM
Version: 2.0, © 1986, 1988, 1989 Silicon Beach Software, Inc.
Suggested Memory Size (K): 700
Application Memory Size (K): 700

Figure 2

Unfortunately, we can't quit the Finder by simply adding a **Quit** selection to its File menu. We need to create an F-Key.

An F-Key (Function Key) is a short program that's executed by pressing a Command-Shift-# combination. Apple even has a few built into the Macintosh's operating system. Command-Shift-1 is a popular one that ejects a floppy disk while Command-Shift-3 takes a picture of your screen. Our F-Key will make the Finder quit when Command-Shift-7 is pressed.

Before going into the details of the tip, let me offer a note of forewarning. This tip involves modifying the Finder application with ResEdit (Apple's shareware resource editor). Although the modification is very minor and easily removable, please read through the remainder of the tip before attempting this in your own home or office.

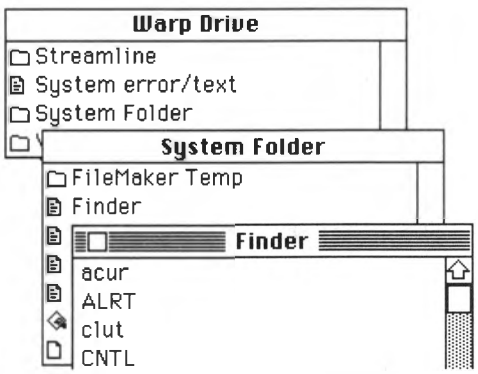


Figure 3

In Finder mode, launch ResEdit and open the System Folder. Then open the Finder as shown below.

With the Finder window still active, select **New** from the File menu and enter "FKEY" into the dialog as shown below.

When you click OK, an F-KEY "resource type" is created in the Finder and is automatically opened.

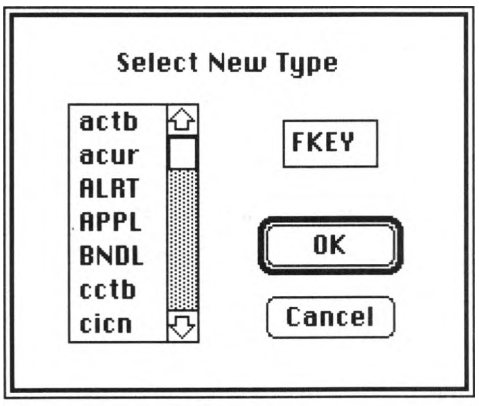


Figure 4

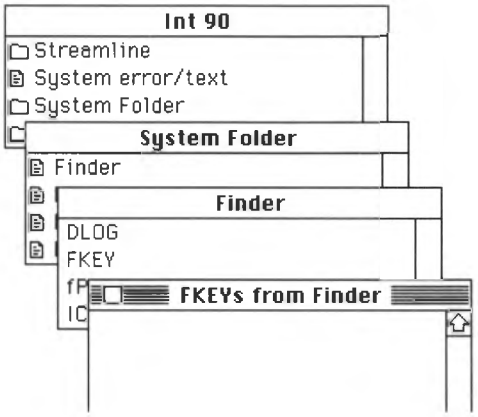


Figure 5

At this point, select **New** again. A new F-KEY resource is created with an arbitrary identification number assigned. In this case, 23411.

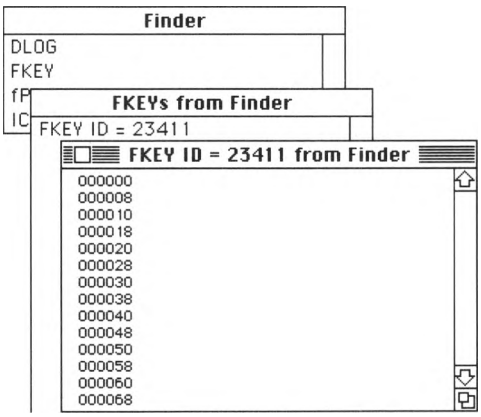


Figure 6

Now we're ready to write our program code to make the Finder quit. Type in "09FA" (Zero, not O) as shown below. It'll automatically be entered in the right place. This is the system level command to make an application quit.

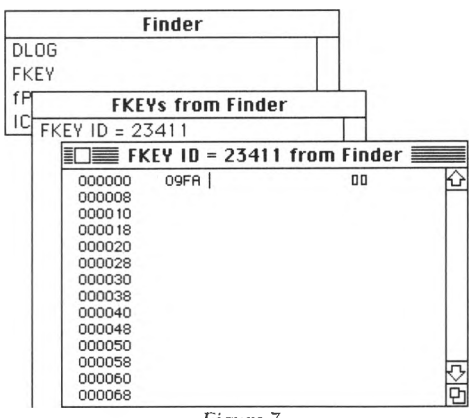


Figure 7

With the programming out of the way, close the new FKEY window and select Get Info, Command-I, from the File menu.

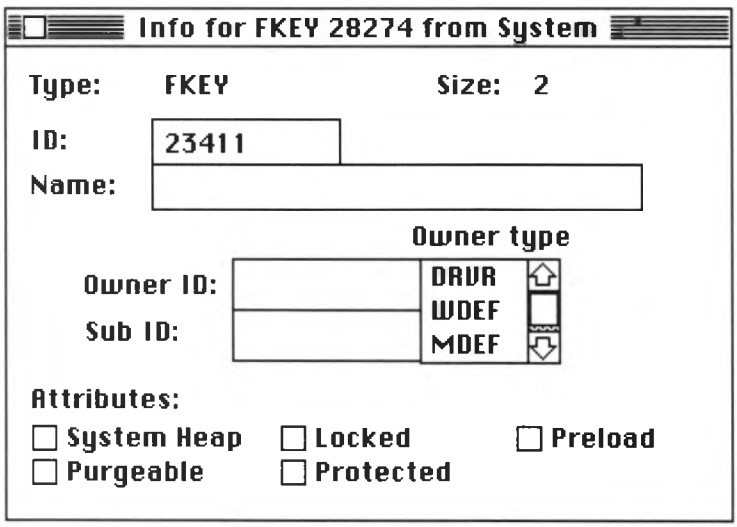


Figure 8

Now assign a new single digit ID #, 7, to the F-key. Actually, any number from 5-9, and 0, would be fine. Numbers 1 through 4 are already used by the Mac.

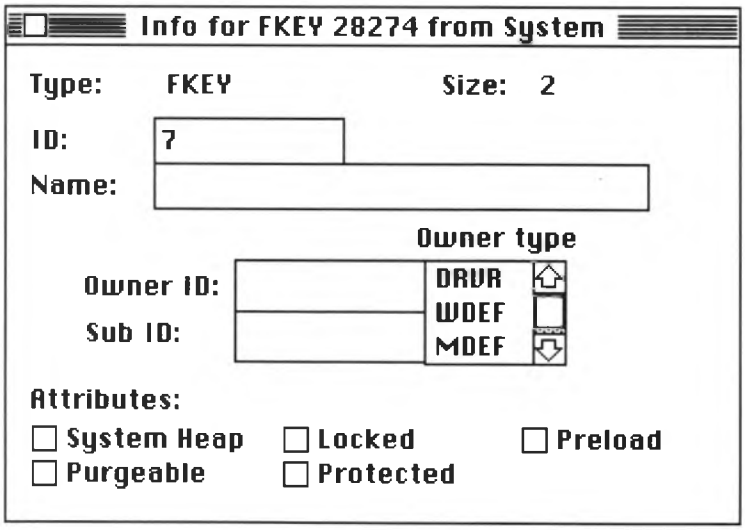


Figure 9

Quit ResEdit and save your changes.

Now enter Multifinder mode and launch a program. (Restarting the Mac isn't necessary). Select Finder from under the Apple menu and execute the new F-Key by holding down Command and Shift while pressing the 7 key. If everything went well, your menus will change and the Finder application will be removed from under the Apple menu. You have just quit the Finder and gained the 160K of memory that the Finder occupied when it was running. However, some of us might have another little hurdle to overcome.

Now that we've disabled the Finder, how can we launch another program? There's no Desktop! Well, sometimes lunch is free but you'll probably still get stuck with the tip. What you need is a utility such as Disk Tools, Disk Top, or On Cue. Among other things, these 'Finder substitutes' let you launch programs, list the contents of a folder, Get Info on a file, and perform most other actions associated with the Desktop. Most are inexpensive, some are in the public domain, and all are useful far beyond the scope of this tip.

When you are finished with you session and quit the last program loaded, the Finder will automatically be reloaded. Don't worry about accidently launching the F-Key while in Finder mode. Although the Finder will still quit, it will reload a few seconds later.

If you would like to remove the F-Key, open the Finder in ResEdit, hilight F-Key in the Finder window, and press the delete key.

So why was this called the $24 tip anyway? At current market value, 1 Megabyte of RAM costs around $150. Since using the F-Key gives you a 'free' 160K of RAM, a little less than one fifth of a megabyte, the cost works out to a little less than one-fifth the price of a megabyte; about $24.

Postscript:

Although this F-Key could be created in any program, or as a stand alone file which could be dropped into the System Folder, executing the F-Key on an application other than the Finder results in something you may not really want.

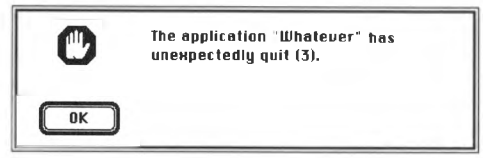


Figure 10

Software that Works

Timeslips III: Make Money, Save Money

by Sigrid Metson

Sure you welcome new technology with open arms, but do you really have time to check it out? Much as I'd like to, when the phone stops ringing at the end of a twelve hour day, I just don't have the time or the attention span to explore new stuff. I want to continue automating my office; I earnestly believe there's a benefit in doing so, but it's eight-thirty, I'm late for dinner, the characters on my screen are beginning to blur and my stomach is getting vocal...

Anyway, if you're at all like me, you need applications that work for you right away. *Timeslips III*, by Timeslips Corporation, is just such a program. I decided to look at it because I wanted to know where all my twelve hour days were going and what I could foist on my coworkers. I hit a bonanza. Briefly put, with *Timeslips III*, you make money by keeping more accurate track of your time and you save money by doing it more efficiently.

Suppose you're an independent contractor, billing clients for your work by how much time you spend on it or bidding for projects by how much time they took to complete in the past. Consultant, freelance writer, desktop publisher, lawyer, accountant — it doesn't really matter. You may even have a sophisticated system in place, breaking your billing units into tenths of an hour with different rates for travel, on-location and office work.

No matter what you're up to, *Timeslips III* gives you an accurate report on the time the job required, empowering you to collect what's fair- It helps you figure out what's in the void between time estimated and time spent.

To do this you start working with *Timeslips III*, you establish a 'resident data set" which is a collection of files that hold the essential, consistent information about your company. A data set includes these categories: timeslips and expense-slips, client and billing information, descriptions of matters or jobs, client bills and payments, text notes, client notes, abbreviations (that you can set) and even a miscellaneous data section. Like a

relational database, you can do calculations within these categories or you can do cross tabulations. The result is that you get more realistic numbers to use in your bills at the end of the month and you get more accurate reporting for your clients.

Once you enter the basic functions of your work into *Timeslips III*, figuring the time you spend on each project is easy. Just use *Timeslips III*'s desk accessory, *TSTimer*. With it, you can track your time and expenses as they occur and your staff can do the same. Because it gives you an objective report, this feature often translates into recognizing that the work took more time than you thought and tells you how to bill accordingly.

Save Money

There are two main ways *Timeslips III* can save you money. First (and most obviously), automated time and expense tracking mean automated billing and ~ time sheets, bills and expenses evaporate. *Timeslips III* helps you efficiently and quickly generate client invoices and reports. They're not particularly beautiful, but they do the job. They give you the flexibility to break invoices into different tasks and show the hours spent at each. They quickly calculate the billing rate for different jobs (and employees) and integrate that into one report. Not only that, you can export your reports and put them into programs like Excel or do a quick calculation and tell payroll for what amount to cut that check. (Timeslips has said they coming out with a version that has an accounting link, in the fourth quarter of 1990-This will let you automatically post your billing information to your general ledger)-

Second, *Timeslips III*'s reports give you a handle on where you're spending too much time. *Timeslips III* can calculate productivity so you know what percentage of your time is billable. Since it can report on specific jobs, it can also tell you if that "minor" project you dallied with on and off for three months actually cost you a full week of work. Used properly, *Timeslips III* can turn into one of your major planning tools.

Room for Improvement

As far as I could tell, there are no major competitors to *Timeslips III*, though there should be. The concept of time and billing software is not new and the benefit is high. Essentially, *Timeslips III* is a truly useful product, but some improvements are in order: I think that the look and feel of invoices is important and it would be nice if *Timeslips III* offered better control over them. *Timeslips III*'s ability to clock real time at an established rate is handy but it could be better. For example, it would be more convenient if it could automatically assign an increased rate for activity after 8:00 PM or on weekends. That way you wouldn't have to assign a separate activity code to the same work just to account for billing. Example: you only get 15 characters to describe a new activity or job.Also, though creating a new timeslip is fairly simple, the process is not quite fluid. It would be more intuitive to have a button for a specific job or task on the same window as the buttons for "user," "activity," "client," and "matter."

Conclusion

The thing I like about *Timeslips III* is that, essentially, it was designed with a real customer in mind. The manual is well written and easy to understand. It was easy to relate to its straight forward applications thrust. If you bill for your time, or need to plan the use of time for others, count on *Timeslips III* to add to your productivity and give you some long term benefits too.

Timeslips III

Timeslips Corporation
239 Western Avenue
Essex, Mass. 01929

508/768-6100

$299.95 (single user)
$699.95 (network: supports five users)

not copy-protected; commercial (available through normal commercial channels)

Address Books for the Computer and Pocket

Why would you want one?

by Herb Dang

When I first started using Dynodex and Address Book Plus I saw no advantage to using the electronic form of the book I carry most of the time in my pocket.

I use a Day Timer calender, address, book, planner in a Jr. 2.75"x5" size. Neither Dynodex, nor Address Book Plus, will print this size as a standard option. Neither program prints a calender or a to-do list, so both are only address books.

My first impression was, why do this when the paper one I already have works? I found, after about 2 months of use, that the advantage was in carrying more of the addresses around. I have a business card file (which I did not carry) with several hundred business cards and with either of these programs the information on those cards is actually useful and *available* to me. The card file I had been maintaining was a binder with pages of cards.

Not having a portable Macintosh, the sense of computerizing a card file and address list was not immediately apparent. I couldn't just take out the portable and look up a name and number, but both programs can print a neat and easily used book out of all the scraps of paper, business cards, and my current address book.

When I had a portable this summer, I used Dynodex a lot and preferred it for use *on* the Macintosh portable, but for my *printed* book I carry the Address Book Plus book. I found the appearance of it more readable and adjustable to my tastes, despite it being twice as big (because it only prints on one side). Address Book Plus will print in a variety of formats and allows you to create custom formats for what ever size pages/ leaves you need. DynoDex, however, only prints in three basic format sizes; full page, half page and three leaves per page (at the time I was writing this a DynoPage was announced which will allow multiple page sizes to be printed, and to print any thing into the custom pages). Also, in Dynodex, the font/size can only be set for the whole book, but it does print pages on both sides. Address Book Plus, on the other hand, allows the customizing of the address book (any printed format) fields, like a regular Macintosh application. The program allows the use of different fonts/sizes/styles per field in a record when displayed and printed.

The Portfolio Systems people have responded to user comments and modified their product between Version1 and Version1.2 (one of the additions was the DA that I like). When I had comments and questions, they responded in a timely and helpful manner. The DynoDex guide and reference are produced in a six ring format and it helps when you first start using the product. Though both Manuals and tutorials do a good job of introducing the programs, I found the Address Book Plus manual clearer and more helpful for practical questions. I *never* needed to use the technical help for it.

I liked the telephone keys in Dynodex, these made all the number fields useable. The phone number fields have a key "descriptor" field. (O for office, F for Fax etc..) In Address Book Plus the phone number field's labels are the only way to identify the numbers.

The Dynodex DA is a full function copy of the application, only it will not print, import, or export data. The Dynodex DA operates very smoothly and is the reason I liked Dynodex when I had the portable. The Address Book Plus DA is only a dialer, with some sort and search capabilities. The Address Book Plus DA allows the phone numbers to be changed but unless you have lots of memory for MultiFinder DynoDex is for you.

The Dynodex DA is a great way to transfer records between Dynodex data bases, since only one database can be open at time in the application. Open the application and then the DA and then transfer records. In the Address Book Plus program more than one database can be open at a time, this avoids that problem.

To print labels or to copy addresses Both programs allow you to copy from the DAs. In Dyno you use a menu command copy labels, in Address Book Plus you double click on the address and copy. Address Book Plus prints labels, rolodex cards, envelopes and address Book pages. In Address Book Plus all those additional formats are available and font style/size can be adjusted just like in the address book. DynoDex only prints the book, but it allows the record to be copied and exported to other applications in tab/comma separated files(so does Address Book Plus).

In Data entry the two programs handle the retention of field values during entry differently. In Dynodex the field setup has modifiers that show what is selected and the modifiers are set in a dialog. In Address Book Plus it is a dialog box where this is done. The pair of programs allow you to change the labels on the fields. Both programs do not allow for the alteration of the field layout in the entry window. The one big difference in the programs come in the size of fields, Address Book Plus will accept and store all the data you type but not display it. DynoDex does not let you store it it beeps when you put more text in a field than it holds. I liked the pop up menus for adding or modifying field contents in Address Book Plus.

I preferred the Address Book Plus data entry, it was more Mac-Like and was easier to change data and it allowed the storage of all the data I wanted.

Both programs need to allow the suppression of printing of information on a individual record basis. i.e. when you have 7 people listed working at Apple or Claris in the same section of the book and would like the address printed once for all of the records listed in that section of the book.

A Hint if you are adding a colleague of someone in book (or add many people in with similar info) duplicate the record and change the different info.

Overall if you have a portable or only use the program on a machine without Multifinder buy DynoDex, but if you carry a printed book or run under Multifinder all the time use Address Book Plus. I personally use Address Book Plus; it prints alternate sizes of pages, it produces labels, Rolodex cards, telephone books and address books it overall is more Mac-Like and very flexible.

DynoDex

Portfolio Systems Inc
156 Flushing Avenue
Brooklyn, NY 11205

Macintosh Plus 1 Meg
or more
System 6.0.X or higher,
Multifinder compatible

Address Book Plus

Power Up Software
Corporation
2929 Campus Drive
San Mateo, California
94403

Macintosh Plus 1 Meg
or more
System 6.0.X or higher,
Multifinder compatible

The Versatility of an Electronic Organizer

by Mitchell Kasdin

It was a Sunday morning when I was headed south on the 405 to LAX. The cars blew by like the Santa Anna winds, and the airplanes seemed to drop out of the sky as they landed. I looked up to catch a glimpse of a wide body 747 approaching, and to my right a giant fifty foot billboard read "Sharp Electronic Organizer."

Months later, browsing at Circuit City, I came across the electronic organizers. The salesman eagerly explained their versatility: the ease of storing appointments, important dates, memos, and telephone numbers. No more lost Post-it notes, fumbling through scraps of paper, or schlepping around an appointment book. I said, "It sounds nice, but will it solve my problems?" He deftly reached into the counter showcase and took out the latest arrival, the Sharp ZQ-5200. When he opened it, I was impressed with its Stealth-like appearance and commented, "Gee, it looks nice!" "You bet!" he replied, as he demonstrated the organizer's bells and whistles.

The ZQ-5200 has 64K of non-volatile RAM (the data is stored unless you delete the entry), a six-minute automatic shut-off, and a computer port to download and upload information. It tells the time (Home button), and it displays the local time of 212 major cities (World button). The telephone list can be searched sequentially, randomly or directly. How about a 200-year calendar that covers the years 1900 to 2100? (Amaze your friends by telling them their birthdate!). The calendar can be displayed in monthly, weekly, and daily format with a simplified timeline. The schedule button complements the calendar, so you can leave detailed notes for any given day and set an alarm to remind you. The memo function permits you to take notes or memos up to a specified length. All this would not be complete without a calculator and a secret, password-protected area where sensitive information can be stored, such as your bookie's phone number, your Swiss bank account number, or your ATM password.

The best functions, in my opinion, are the DO LIST and the EXPENSE Manager. The DO LIST allows you to prioritize your activities and to categorize them by project, by deadline, or by manager's name. The EXPENSE Manager displays your entries with dates, categories, amounts, modes of payment, receipt indicator (Y/N), and description. The Report mode lists the entries in daily, weekly, or monthly order, with subtotals and totals in each category.

So what else did I like about the Sharp ZQ-5200? Aside from the aesthetics, I liked the rubberized (non-membrane), raised, QWERTY soft-touch key pad and the symbol buttons. The Casio organizer, on the other hand, uses a separate code button and has symbol keys all over the keyboard. The Sharp's upright screen permits eight lines of text or 128 characters per screen, making the contents easy to read. In addition, you're not restricted to 256 characters in the memo function, or limited in scope in any one mode, i.e., you may have 1,000 telephone entries. The memo function also allows a one-step delete, the ability to move memos around without having to retype them, and a cut-and-paste function. The DO LIST and the EXPENSE Manager permit adding headings, such as "Video Games," and deleting names.

Do I have any gripes or hints for improvements?

- The calendar's Day mode has a poor time line. It displays only four characters of the activity, and you have to toggle between morning and afternoon. Casio's BOSS organizer, in contrast, uses a Gant chart in its schedule function, with shaded sections

denoting scheduled appointments. A very effective planning tool!

- You have to press the shift button to change from caps to lower case; it's a "caps lock" key. A shift key that defaults to lower case and an option to lock the shift key to type in all capitals. By the way, the lower-case g, q, and y were hard to read (ditto for the Casio).
- The legibility of the text and the overall functionality of the organizer could be improved by widening the screen. (I have learned to tolerate it.) By simplifying and moving the symbols from the side of the screen to the bottom (like the Casio) the screen could be widened by two characters to eighteen characters.
- The telephone book section should have one free field after the address to store miscellaneous information, such as birthdates, directions, or comments. Although you can insert the information under the address, a separate field would be more convenient. Also, downloading the information into Hypercard would be easier if the comments were stored in a separate field. The Casio, for example, offers three free fields, but since they are mandatory, you must press the Enter key three times to save your entry.
- Most of the high-end organizers have a built-in dictionary and a thesaurus.
- The "User Dictionary" is a misnomer. Why not call it "Abbreviations." Although it may be practical to some users, I haven't found a need for it.
- I suggest redesigning the Wizard to make it identical with the ZQ-5200, but offers card expandability.

The strength of electronic organizers, in general, is their tracking of schedules, appointments, and expenses, as well as their ability to store short documents in the memo section. The Sharp ZQ-5200 does this in a nice, neat, little package.

FoxBASE+/Mac

and Its Literature

by Winfield Smith

During the last eight months, I have been more or less unhappily trying to master FoxBASE+/Mac in my spare time. As a civic service, I took on the transfer of

database files used by a local legislator from an institutional mainframe to an SE-30. The application for managing the data had already been chosen by yet another do-gooder, one with no Mac experience but who had heard that FoxBASE was very fast. On the strength of that, they had purchased a copy of the software.

To some, a major advantage of FoxBASE+/Mac is that it runs many dBASE programs from the IBM world without modification. There is a huge amount of third-party literature on using dBASE, mostly on IBM and compatibles, but I had no familiarity with dBASE, so I made no effort to approach FoxBASE+/Mac through this indirect route. A few years ago, I had taught myself Level II BASIC and Z-80 assembler language and had made extensive use of Microsoft WORKS 2. 0's database module on the Mac. These were all reasonably pleasant experiences, so I anticipated no insuperable difficulties in

learning the FoxBASE programming language well enough to write programs that would do what had formerly been accomplished with the DEC relational database on the mainframe. Furthermore, I looked forward to doing all this in ways that would present a magnificently Mac-like face to the user, with modeless operation, customized menus, graphic windows and report forms, a variety of fonts, and so on. The number and heft of the four manuals provided by Fox Software were reassuring, and I started in on the first of their approximately 1400 pages with no anticipation of the painful experience ahead. This was in February 1990.

In the course of attaining such facility as I now possess with this versatile, useful and, yes, fast database application, I also bought and read through two third-party books on FoxBASE+/Mac for an additional $50 outlay and spent an hour or so on the telephone with Fox Software's customer support people (and longer waiting for them to return my calls). Much of this effort was wasted or misapplied, and my main purpose in this review is to help others avoid a similar experience.

The writers of the three books discussed here are familiar with FoxBASE+ and are authorities on the subject. The authors of the manuals from Fox Software, Inc. are, by definition, the ultimate experts. George Goley writes a FoxBASE column in a monthly publication for database people and has his own consulting firm specializing in custom FoxBASE+ programming. Michael Masterson is a business consultant affiliated with a major accounting and management firm and president of a dBASE language group in Silicon Valley. The reader might expect that any of these three could produce a useful introduction to the subject, but (I hate suspense in a "serious" paper like this) only Masterson did.

Concerning the manuals that come with the application, it is clear that no one with competence in expository writing or technical instruction ever got near the writing process. I have seldom seen a more poorly organized and aimless five pounds of printed matter.

Everyone must agree that it makes sense to break down documentation into several easier-to-handle volumes, corresponding to different stages or kinds of needs. But much of that purpose is defeated if the user needs to use all the volumes simultaneously. Hints, tips, and downright crucial pieces of information are scattered throughout the four volumes (not to mention the Release Notes and the on-disk tutorials), so the user is never able to dispense with any single volume. At the same time, passages are repeated, word for word, throughout the volumes or sometimes even within a single volume, as if the writers weren't sure where the information really belonged and decided to put it everywhere. In short, it is enormously frustrating to try to learn FoxBASE from these manuals.

To make my point, I shall present a rational organization of this material which the reader can assume the Fox Software manuals do NOT follow, unless otherwise stated.

[User's Guide, Quick Start - Tutorial, Commands & Functions, and FoxReport - FoxForm - FoxCode. Fox Software, Inc., 1989, four volumes, ≈1400 pp., softcovers. Distributed with the FoxBASE+/Mac application.]

Vol. I. INTRODUCTION, or READ ME FIRST

What's in the box. Minimum and optimum hardware configurations. Using the password-protected decompression/installation program. Setting up. Backing up. Starting FoxBASE and an individual program. What to do if FoxBASE or the application won't run. A very brisk guided tour through one (or more) of the sample/tutorial programs, from the standpoint of a new user of the program, not a program writer. All important information which the user will need at the outset that can be set aside, perhaps forever, once they are past that stage.

Vol. II. USING FoxBASE

This would aim, first and foremost, at training a person to work with an existing set of linked FoxBASE database files: using the interactive mode to browse, sort, search, edit, append, select on records and fields,

print reports and labels in preexisting formats, and so on, using one or more of the numerous sample programs on the distribution disks. There are many everyday users of FoxBASE who are not going to be writing major applications but still need to know such things as the basic procedures for building filter/search/ selection/indexing expressions, how to write a report, form letter or other document incorporating information from one or more databases, and perhaps even how to make minor changes in report formats. The present documentation nowhere covers the last two of these functions in any accessible, step-by-step fashion.

The text of Vol. II should contain nothing that would confuse or put off that non-programming user. However, it should also serve as a learning tool for would-be programmers who could follow this tutorial while having at hand a printout of the underlying program and some sample records from the actual databases. Naturally, the sample programs should be thoroughly annotated, but they aren't! It is ridiculous and infuriating for the student to have to puzzle out the meaning or purpose of a string of commands in a sample program that is supposed to be helping him to learn.

Vol. III. COMMANDS AND FUNCTIONS

This could be organized and written very much as is the present volume with this title, except that there should be helpful, insight-conveying examples on each page. I suppose it is all right to present the pure, ultra-distilled commands and functions, with their thickets of square brackets and ellipses representing all the options, but somewhere the reader should also find real examples with the exact syntax (i. e., showing precisely where the commas, colons, semicolons, and parentheses go) and illustrating/commenting on useful, non-trivial applications of that command or function. The model of such a useful manual is certainly Radio Shack's old Level II BASIC Manual, or the Commands and Functions section of the Michael Masterson book discussed below. It's as if some thin-lipped Computer Science prof had somewhere given the Fox Software writers a permanent fear of Not Being Terse Enough.

Vol. IV. FoxReport-FoxForm-FoxCode

Since FoxCode is the special language and compiler that allows developers to semi-automate the writing of customized FoxBASE+ programs, there is good cause for putting it in a totally separate volume where it has less chance of confusing or intimidating the more ordinary user. It has nothing to do with FoxReport and FoxForm, which are the handy tools for generating screens and printed reports from a FoxBASE application.

As to the presentation of FoxReport/ FoxForm, it requires a thorough reorganization and rewriting for intelligibility and ease of use. It may be difficult to impose some simple order on such a mass of interrelated information, but the present effort gets an F. In six chapters, the authors bounce back and forth through a large body of closely related topics at various levels of difficulty. It would certainly have been possible to produce a much more systematic and unified treatment — one that does not send the reader flipping madly through the (inadequate) index to find the mention of a particular feature.

With the big manuals, you also get a slim Release Notes booklet which contains vital information (and not just a little of it!) on the proper use and behavior of many portions of the program. The documentation package gives the only information on a number of major improvements in Version 2. 0, such as the end of the need for cumbersome array setups for generating custom menus. If only such information could have been provided in a form that allows the user to paste its sections into the relevant main manuals at the proper pages! I had to duplicate the entire booklet on a copier, then literally cut and paste the sections in.

All this shows just how much the specialized services of competent technical writers are needed for documentation of a major application. Fox Software has recently taken on its first Director of Publications, who looks as if she may be putting some serious effort into this in the future.

George F. Goley IV, Dynamics of FoxBASE+/Mac Programming. Dow Jones-Irwin, 1990, 360 pp., softcover, $21.95

The murky quality of the existing manuals has (so far) encouraged the publication of two books that purport to assist the FoxBASE+/Mac user/programmer. I will discuss them in the order in which, unfortunately, I encountered them.

You may begin to suspect trouble when you read (p. 3) that Fox Software's manuals are "invaluable reference aids, and this book does not replace them" (etc., etc.). That's Goley's excuse for failing to face up to the task of providing a real guide. Or is that what "Dynamics" means? You would never know from this effort that Dow Jones-Irwin is a major publisher of educational and technical books.

Organization is nearly as bad as the FoxBASE manuals themselves. Much of the index is taken up with listing a number of programs with uninformative names like crrepo1h.prg. The book bears all the usual signs of hasty writing, assembly and proofing, including mis-numbered and mis-referenced illustrations.

Teaching all too often takes the form of presenting an extremely simple program, then making it more and more complex in a number of steps, meanwhile keeping up a line of entertaining or merely smart-aleck chatter. I find this sort of thing barely tolerable in person-to-person instruction; it makes for dull reading and pads out the book.

When Goley doesn't like a feature, you're not likely to learn much about it. Examples: [1] Early on, he briefly and contemptuously dismisses Alerts; later (p. 149), he uses 21 lines of program to do precisely what an Alert could do in one line. [2] FoxForm, the built-in, Draw-like screen and form utility that easily generates elaborate, user-modifiable listings and code, is disposed of in 13 pages late in the book. Two of these are taken up with a discussion of the pros and cons of using FoxForm at all, the macho alternative being to write the listing yourself. (Con wins. One of Goley's 10 points against FoxForm is that its pixel addressing isn't PC-like.) [3] Procedure files are never mentioned anywhere, although they are highly useful ways of bundling together a program and its related subroutines. Maybe they aren't available in the IBM version; Goley is the author of a parallel book on the IBM version of FoxBASE+, which may help explain some of his preferences.

Halfway through (p. 167), the author presents seven pages of listings for a group of programs which do the housekeeping for all the examples in the remainder of the book. You are free to key these in yourself, or you can send him $20 for a disk containing all the programs and databases in the book. (At this price, to be paid directly to his consulting/programming firm, he will make a lot more per disk than from the book itself.) I took the third alternative, neither buying the disk or entering the contents by hand but just reading through the book and learning what I could from the text and printed listings. The housekeeping programs may be clever, but they too often substitute complexity for directly useful learning opportunities. If you err in your manipulation of this nest of subroutines, you may well face debugging challenges you do not need and that are unrelated to any task you want to prepare for.

There are useful things, however. The book covers valuable program features which Fox Software relegates to the Release Notes booklet and, hidden in thickets of repetitive programs, one finds ingenious and useful ideas. A person who had already acquired (somehow) a basic facility with FoxBASE would probably find it an interesting and stimulating read. But a systematic introduction it's not.

Michael Masterson, FoxBASE+/MAC SIMPLIFIED. Windcrest Books, an imprint of TAB BOOKS, 1990, 540 pp., softcover, $26.95

I had always figured TAB as only one step above a vanity publisher. It was a pleasant surprise to find this a well-organized and nicely printed volume. It could serve as a reasonably complete stand-alone manual.

The first 200 pages do a decent job of presenting principles of database construction and management, laying out the features and procedures of FoxBASE+/Mac, and doing all this in systematic form. With the Table of Contents, you can actually find your way back to the section dealing with a problem you have encountered without hunting through scores or hundreds of pages to do so.

Chapters 8 and 9 present the contents of Fox Software's Commands and Functions manual in a tenth fewer pages than are used for this purpose in the Fox manual. What's more, every page offers non-trivial examples showing full syntax, usage hints and the like. There are screen shots to illustrate important points and cross-references to the earlier chapters. And there is still plenty of room at the margins and bottoms of pages for you to enter your own comments, notes, and reminders.

But nothing is perfect. Masterson's index has far too many entries, as if it had been produced entirely by an automatic indexing program. A typical example: the PRIVATE command has seven page references, at least half of which are trivial. Also, the in-text cross-references are hard to use, because they give only chapter or figure numbers rather than actual page numbers. Since the book lacks chapter number identifiers in the footers, you may have to flip many pages to see if you are in the chapter referred to.

Finally, here are a few comments and nuggets of information about the FoxBASE+/Mac application itself, for such value as they may have.

- I wish FoxBASE were a little more resourceful at finding files in folders other than the current folder. In debugging a program, the writer is constantly faced with the arrogant "File Does Not Exist" message when FoxBASE can't find a file that may be practically under its nose. HyperCard knows enough to ask for help in finding Home and it would be nice if FoxBASE could do something similar. When you get such a message, try this method to amend your program: use the heavily Mac-like interactive mode to navigate to and open the missing file. Then open the Command window, which will show you the proper commands/syntax for what you just did, copy that with Command/Apple key+C, and paste it into your program. Of course, you could forego the advantages of HFS and just keep everything related to FoxBASE in a single giant folder, but who would do that?
- FoxBASE seems to have no way to vary formatting of program printouts. On my dot-matrix printer and also on a LaserWriter IISC, you can't set the left margin to leave space for 3-hole punching, vary top and bottom margins, or select individual pages or other portions of a long listing for printing. The work-around for the last of these is to copy and paste the desired part into a DA word processor and print from there. If I had an ImageWriter, I would probably use miniWriter or MockWrite, but they drive my Panasonic+Grappler printer crazy. I get along with Michael Conrad's ConText, an $8 shareware DA that works well with my hardware.
- The STEP/TRACE debugging procedure isn't very helpful in debugging any part of your program that makes its own use of the SYS(1035) command (which tells you which of the various windows or screens has been used). In such circumstances, SYS(1035) will merely return a -6 when the TRACE window is open. You can work around this by inserting a line of debugging code saving the desired value of SYS(1035) to a memory variable, then reading it while program operation is suspended.
- FoxBASE+ has no command for pulling together data from several databases where a single "parent" record may refer to more than one "child" record. [Example: a parent database of school courses, linked

to a child database in which the records are individual textbooks, where a course may have no book, one book, or several.] You will have to write some code whenever you want to get the child records all together into memory variables or an array, then make screens or reports to show them all together.

- According to one person on the customer support line, the FoxUSER resource file, which stores pictures and other useful things, must be placed in your System folder for it to be easily located by FoxBASE+/Mac. Otherwise, you're liable to get the good old "File Does Not Exist" message when you do anything that calls for this file.
- You can construct an index on a combination of fields, via a command like "INDEX ON fieldA + fieldD + fieldB." All the fields have to be of the same type, but you can usually make them so by conversions, e. g., "INDEX ON textfieldA + STR(numberfieldB)." BUT, if you index on a combination of numeric fields, actual indexing takes place on the numerical sum of those fields, which will probably not give you the results you are looking for, e. g., indexing on Ward + Precinct (where both are numerical fields) will place the 6th Precinct of the 10th Ward with the 8th Precinct of the 8th Ward (and any other combinations that sum to 16). Instead, index on: STR(Ward) + STR(Precinct).
- The template required for converting Screen files (those you create in the familiar draw-like way and then save in .scx files) into Format files (which FoxBASE later reads to produce those beautiful screens) is not really "built-in" or "self-contained," as the manuals say so frequently. Instead, at least in Version 2. 0, you have to tell the Generate dialog to use BOTH your .scx Screen file and a template called Format File.cod. Unfortunately, the latter comes buried in one of the tutorial folders, where you are unlikely to run across it or realize its importance.

A New, Low-cost Automated Mapping

Alternative for Municipal Planning Agencies

by Matt Tomas

A new mapping application, developed by Jay James of James Engineering in El Cerrito, CA, turns the Canvas drawing/graphics program for the Macintosh and a database program into an automated computer mapping system. The SmartMap application creates a new standard in automated mapping and provides a low-cost alternative to high-cost dedicated Geographic Information Systems (GIS). Using Apple Computer's Macintosh technology, James' SmartMap application turns a Macintosh II into a mapping workstation. The mapping system, like a traditional GIS, links a database to a computerized base map. This enables the user to query the database. Once the program has found the desired information, SmartMap highlights the corresponding map objects on screen. Unlike a traditional GIS, the database doesn't have to be part of the GIS, but can be an existing text-only database.

In a recent article on alternative computer mapping applications, in the American Planning Association's June 1990 issue of its Planning magazine, Charles Donely, a planning consultant, points out, "Planning

is a diverse profession, but the one thread that ties most of us together is our reliance on geographically related information." For urban planners who must do any type of land use, transportation, economic or demographic analysis, this application brings instantaneous access to both quantitative and spatial information.

The major benefit of the SmartMap mapping system is not its ability to link information in a database to a map on a computer screen, using a common graphics and database program, although this is a technological advancement into new territory, but rather its lower cost and the amazingly little time, when compared to a GIS, it takes to digitize maps. In his article, Donely cites that time is a major factor in implementing a GIS system. He states that, "Unless the process is contracted out, a large-scale GIS will take at least five years to implement. And how many can afford the hundreds of thousands of dollars in start-up costs?"

Dedicated GIS vs. SmartMap: A Real Life Example

In the city offices of Berkeley, CA, the Public Works Department is digitizing city base maps using a Computer Aided Design & Drafting (CADD) program, the drawing tool many GIS systems use to draw maps. That department has already spent several hundreds of thousands of dollars, invested many months in the effort and has, to date, less than 10% of the city mapped. This same municipality's city planning department almost followed this same path, but changed its strategy after discovering James' SmartMap system. In one summer, the planning department was able to complete 98% of the city's base maps for a cost of less than $8,000.00, the cost of hiring a temporary graphics person to recreate the maps on the Mac. Berkeley digitized its base map at a parcel level and plans to add more information later, such as building footprints, census tract and zoning district boundaries, traffic zones (for its computer traffic model), and land use designations. For those of you who might want to compare the size of your jurisdiction, Berkeley contains about 25,000 parcels and is about five miles square. Canvas was able to fit the entire city at 250'=1" within the 9'x9' limitation of an individual file.

Costs

As stated earlier, traditional GIS systems typically cost several hundreds of thousands of dollars to buy the hardware, digitize the maps, and train the operators. The total cost of hardware and software for the SmartMap system, using present-day prices, is about $25,000. Costs associated with digitizing the maps is one area where major costs savings is realized. GIS systems typically use highly technical and costly digitizing equipment and drawing software. A CADD program, the drawing tool employed by GIS to digitize base maps, is generally used in the engineering and architectural fields and can easily cost over $2000.00. A large digitizing table capable of holding a 24"x36" map can cost over $5000.00. The cost of having a technician trained in using the CADD program, and digitizing equipment to draw the maps, is where much of the capital expenditure is allotted.

Because of the Macintosh's ease of use, there are many casual users who have the drawing skills needed to create the maps on screen. There is even a Macintosh temporary service in San Francisco which provides personnel support to those organizations which may lack in-house expertise. The actual drawing skills needed to operate a CADD program is similar to those used in the Canvas drawing program, however, the technical knowledge needed about how such a program works is generally limited to an engineer, architect or trained technician who is doing the actual design work of, perhaps, a structure or mechanical drawing.

The Macintosh temporary service, mentioned above, cited an hourly rate of about

$25.00, whereas the hourly rate for a competent CADD technician might hover closer to $50.00 per hour. Another option is to look at hiring a freelance graphics technician, whose rates might be as much as 20% lower than traditional temporary services.

Components of the SmartMap System

To assemble a mapping system, one would need a flatbed scanner ($1700.00), a well-equipped Mac II ($8000.00), the Canvas drawing program ($180.00), James Engineering's SmartMap software ($300.00) and a database program (usually existing). This setup creates better maps and has similar analytical capabilities of a GIS at considerably less cost. One might note that the Mac II doubles as the main digitizing equipment and the computer on which the mapping workstation is based. With GIS, separate purchases for digitizing equipment and the workstation are needed. Hardware for the GIS workstation alone can cost over $50,000. As city and county budgets face continued reductions and cutbacks, the SmartMap system becomes an attractive and viable mapping alternative.

Digitizing Techniques

The SmartMap system uses a different approach to create the computerized base maps. Rather than using a digitizing table and puck (mouse), scaled maps are first scanned into the Mac, then brought up on screen as a high-resolution template from which the new base map is created. Creating the maps on screen is actually more accurate than using a digitizing puck to trace maps on a table, because the screen image can be magnified for fine work.

The use of the Mac's color monitor has several advantages while tracing a scanned map image. The Mac's high-resolution screen and color system shows the user when the lines which are being drawn are exactly over the template because the drawn line changes its color when located directly over the template image. For instance, if the user is drawing red lines over a scanned map image that is set to green, the lines will turn yellow whenever they are directly over the image line. Tracing inaccuracies show as red fringes around the yellow line. This visual advantage removes the need for the manual accuracy which is required when using a digitizing puck.

Finally, James says, "You can always tell where the user left off, using the Macintosh, because the template tracings on your screen provide an on-screen record of what has been digitized." With a digitizing tablet, it is very hard to be sure that you digitized every single line on the paper map, particularly when the drawing is crowded.

Printing the Maps

Creating a printout of the maps in the SmartMap system also differs from a traditional plotter-based GIS. Whereas a plotter can use multi-colored pens, it creates only cross-hatched patterns rather than solid shadings. The resolution of the plotter output is also limited to the thickness of a felt tipped pen, which is the typical drawing instrument used by plotters. The SmartMap system relies on the color capabilities of the Macintosh and on laser printing technology. Check prints are easily made in either black and white or color at 300 dot-per-inch resolution on office laser printers. For higher resolution, you can use a phototypesetting device like a Linotronic, commonly available in desktop publishing parlors,to produce maps at up to 2540 dots per inch. Getting large size (24"x36") prints is a simple task of sending the originals to a blueprint service or a copy shop with a Xerox 2040 large-format copier. If the original is on a Linotronic, you can still maintain a resolution of over 800 dots per inch, almost three times the resolution of this print which you are reading.

Color output devices are now priced at affordable levels. Just three or four years ago

this technology was available for about $25,000. Current market prices for these devices are about $8,000.00. Known as color thermal printers, 8.5"x14" output is available on these machines, which look just like your office's laser printers. It might take many printouts, but piecing together full-size color land use maps are now a reality. Finally, the newest development in color output produces 42"x12" prints using Encapsulated Postscript files, which Canvas supports. Piecing together a full-size map using this technology might require two or maybe three prints. If the organization had its own color thermal printer, changes can be made on 8.5"xl4" panels and simply pasted over the large size original.

A Multitude of Planning Applications

Berkeley's mapping system will be used much like a GIS. Berkeley's map and database is at a parcel level so the scope of applications is virtually limitless. Because that city is beginning to update its General Plan, the new mapping system will be invaluable for mapping and data analysis exercises once the database is developed.

An emerging planning concern facing many communities in the 1990s is locating hazardous materials. Mapping those sites which store, handle or produce toxics might be an excellent tool in determining where emergency response, in the event of an incident, should be targeted. Analyzing where future growth might occur, based on vacant and modestly developed sites, could be used in a computer model which would then predict what future traffic conditions might be like if these properties were redeveloped with larger buildings or higher, trip generating uses. Likewise, many California cities and counties are enacting growth management legislation which requires planning agencies to closely monitor new physical growth and track the amount of vacant lands designated for development.

A key feature, which many budget analysts and administrators like about a system like this, is the potential for revenue generating products. Scaled site plans can be sold for nominal fees to applicants seeking land use and building permits. Maps which show and database reports which list vacant buildable properties, for the real estate industry, can be prepared and marketed. Fees do not have to be high, just enough to recover the costs of maintaining the system. This means that over the long-run, general fund monies will be recovered through the demand of products from the general public.

Other Benefits

The benefits of having detailed, geographic information for use by not only planning agencies, but by fire and police departments as well, might mean excellent insurance safety ratings for a city. Externalities such as these, might mean the difference to that corporate executive, tired of paying high insurance premiums and who is considering moving the company's office location to your downtown. Not only does the city gain tax revenues, jobs, and a boost to its local economy, but taxes might be reduced or more funds might be made available towards other services. To this extent the benefits of automated mapping go beyond high-tech land use analysis, but also contribute to the well-being of any community, which, in the long-run, is something that can be supported by all.

Jay James, developer of the SmartMap mapping application: Jay James is the Director of the Stege Sanitary District in Contra Costa County and has an engineering consulting firm located in El Cerrito, CA. His technical background is in database management and is a licensed engineer who also teaches and lectures at UC Berkeley. Jay has been thinking about low-cost mapping systems for some time. SmartMap is the product of that thinking.

Matt Tomas is an urban planner and Macintosh enthusiast, who formerly was part of the planning staff at the City of Berkeley from 1986 to 1990. During his time there, he helped bring the benefits of Macintosh technology and the SmartMap application to Berkeley's city planning department and to a bureaucracy which once only used IBM-clone computers. Today, the city has several Macintoshes. Matt is presently in Contra Costa County's Community Development Department doing long-range planning work.

Synchronicity 2.5

by Ned Wilkinson

Anyone reading this should be aware that this is the second review that this product has received by this author. The developers of the software were apparently very disappointed with what they perceived to be a very cynical, closed-minded opinion, and requested a second showing.

This software, billed as *The Intuitive Decision-Making Tool*, is based on the *Book of Changes*, an ancient Chinese text of philosophy and strategy that contains 64 major readings, and on Carl Jung's theory of synchronicity, which holds that "every process is partially or totally interfered with by chance..." You are instructed to ask Synchronicity a question regarding something that is important to you (questions which require only a yes or no are discouraged), then meditate on a scene of a running stream complete with frog sounds. When you are ready to receive your answer, you hold down random key combinations for a random amount of time, three times; then, Synchronicity gives you a reading from the Book of Changes that has been determined by your key combinations.

This sounded an awful lot like pure chance to me; so, I read up on the manual a bit more, and found that I was exactly right. Apparently, the keyboard process used to determine the reading given is a modern-day simulation of something called the *yarrow stalk* ritual, which was indeed used to generate random readings of the Book of Changes. Therefore, it must be said that this program does in fact follow the original concept of the book. The manual comes with a disclaimer that states that "...events that happen, psychological or otherwise, can never be precisely predicted by Synchronicity or any other system."

Well, I did ask the program some broad questions concerning my work, my love life, and my state of mind; in each case, the reading I received had absolutely nothing to do with what I asked about, and in fact was barely applicable to anything going on in my life. I suppose I can't complain, since the manual advises me to not accept any advice that doesn't *ring true*, and to just reword the question and ask again. I couldn't help but think that this was similar to a child asking his mom repeatedly to buy him some candy at the grocery store, hoping to wear her down with his constant requests. Even though it would probably be considered cheating, and certainly wasn't the intention of the writers of the Book of Changes, I kept asking myself why I couldn't just read the book myself, directly, and find the answer that applied to me.

All said...As far as Synchronicity being an accurate software version of the philosophy and strategy system it espouses, I think it's a fine effort. As far as the philosophy and the strategy go, those who see more causality in the universe (like myself, I admit) are not going to be won over by a self-proclaimed *oracle technique*, even if it does have nifty graphics and cool frog sounds.

And the frog sounds *are* cool.

Population Simulator Program

by John K. Dixon

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Pop15 is a program that simulates the evolution of a human population over time. It is intended to illustrate some principles of population growth and decline in a vivid

and dynamic way. You can play the role of king or czar and control population in the way that you think best. The program will show the consequences of your decisions as time goes on. You can even reverse time and change your decisions if you don't like the way they turned out.

You may be surprised to find that population dynamics are not as simple as they might appear. When age distribution is taken into account, some strange and surprising things can happen. After working with this program, you will probably know more about population dynamics than 999 people out of a thousand. This program is based numbers from the Statistical Abstract of the United States, 1989.

This program is shareware; it is copyrighted, but you may try it out for free and you may give copies to anyone, provided that you keep the program and the instructions together. If you find the program worthwhile, you are requested to send $5.00 to the author.

To start the program running, double click on the Pop15 icon, just as you would for most Macintosh application programs. You can control just about everything with the mouse. It is suggested that you run the program while reading the story below.

A Space Colony

The program contains population distributions for several different countries. When the program first starts running, it uses the population for a fictional space colony. This population is included to clearly illustrate some interesting features of population dynamics. The science fiction story below explains what is happening.

The Story

An expedition is sent a great distance from Earth in a spaceship to colonize a newly discovered planet. Life will be hard during the first years as the colony is clearing land, putting up buildings and getting established. Therefore the population of settlers includes no one over 40. However, children are included to provide the basis for the next generation. The colony is expected to be self-supporting and not require any additional supplies or settlers from Earth. According to the master plan, the colony is to keep a "stable" population during the early years, and then begin population growth after a few decades when life is easier and the burden of supporting many children is easier.

Imagine that you are population advisor for the colony. Your job is to keep track of population trends and advise the governor of the colony about adjustments needed to

follow the master plan. The great ship lands on the planet in the year 2000. The original population has 1000 people in each age bracket or cohort; there are 1000 one year olds, 1000 two year olds, 1000 three year olds, and so on, up to the age of 40.

The term "cohort" is used by demographers to mean all the people born in the same year. All the individuals in a cohort have the same age (give or take a few months) which increases every year. For example, the people in the cohort of 1970 will all be 10 years old in 1980 and 20 years old in 1990.

Figure 1 shows the first screen that you see after starting the program: a graph of the original colony population, with one dot for each cohort. The horizontal scale gives the present age of each cohort; the vertical scale indicates the number of people in each cohort, in units of 100; thus 10.00 on the scale means 1000 people. The dots that represent each cohort form a perfectly straight line since there are 1000 persons in each cohort.

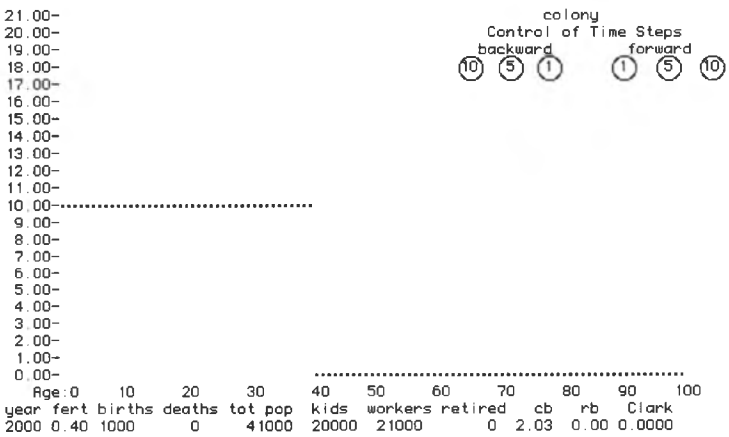


Figure 1

At the bottom of the screen are some numbers. 2000 is the current year. There were 1000 births, but no deaths during the year 2000. The total population is 41,000 of which 20,000 are kids (children) and 21,000 are workers. We assume that everyone from age 20 to age 65 is a worker. We will discuss the other numbers later.

To see what happens to the colony population during the first year on the new planet, click the mouse once on the "forward 1" circle near the upper right corner of the screen. You may also select **+1** from the **Step** menu. Both of these commands do the same thing, advancing the simulation by one year. After the screen regenerates, you should see a slightly different picture. The year is now 2001, and there have been some births and deaths.

Whenever the program advances, it computes the births and deaths for one year and makes each cohort one year older. The number of births depends on the number of people in the childbearing years (mainly age 15 to 40). The program "knows" the relative number of babies born to women at each age. We use 1987 US statistics for these numbers. The number of babies born also depends on the fertility rate. This rate may be changed, but is initially set at 0.4 for the space colony. This means that the average family will have 0.4 children, a rather low rate.

The program also "knows" the death rate for each age, again using current US statistics. For example, only 19 people out of 100,000 will die at age 10, but 2962 people will die out of 100,000 at age 70.

The key point to remember is that the number of births and deaths for each year in this simulation depend not on the total population, but on the age distribution of the population, just as it does in real life.

In the case of the new space colony, it is obvious that about 1000 births are needed each year to maintain the continuity of the population, but life is difficult at the start of a new colony so during the first year only 198 babies are born and 50 people die.

You advise the governor that steps should be taken to increase fertility. He replies, "198 babies were born and 50 people died, is that correct?"

"Yes, but.."

"Then simple arithmetic tells us that our population has increased by 148 people"

"Yes, but.."

"According to the master plan we should maintain a *stable* population at this time. Yet

you admit we are growing. If anything we should try to reduce fertility."

"But Governor, our death rate is artificially low because we have no older people. Eventually the death rate will be 1000 per year, thus anything less than 1000 births per year will eventually result in a population decline."

The governor replies, "Look, is the population growing or is it not?"

"It is right now, but that won't last. Governor, the important thing to watch is the fertility rate, the average number of children per family. It is perfectly clear that two parents must have two children if the population is going to be stable. Actually the magic number is 2.1, since a few children die before they reach adulthood. If the fertility rate stays below 2.1, the population will eventually decline. Our fertility rate is now only 0.4. We must increase it to at least 2.1."

"I do not understand what you are talking about. Our population is growing now. That is the important thing. That I understand. No change in the fertility rate is needed." (It is clear that the governor is not very bright. Some say that he got his position through nepotism.)

Notice the number of 0.40 under "fert" at the bottom of the screen. That is the current fertility of the population. Now click four times on the **+1** button, and once on the **+5**, so that we advance to the year 2010. You will notice that there is a delay after you click on **+5** because the computer takes a few seconds to calculate five years of simulation.

In the year 2010, the population chart looks like figure 2:

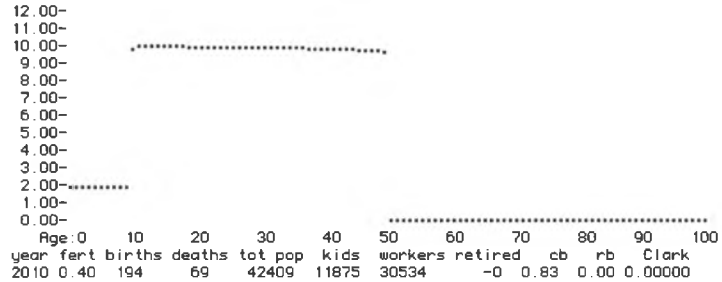


Figure 2

Notice that the rectangle that represents the original population of the colony has shifted ten years to the right; this group is getting older. Also, the top of the rectangle is no longer flat. It slopes to right because the death rate is greater at older ages.

The smaller rectangle from age 0 to 9 are the children born since landing on the new planet. Let us call this group "the second generation."

You show this chart to the governor. After studying it he says "Aha, I see that there are still more births than deaths. Our population is still growing."

You reply, "But Governor, there is now a deep valley, a hole, in our population chart from age zero to 9. In 20 years those children, the second generation, will be in their 20s; the age bracket in which most women have their children. The number of births each year will fall drastically then. In thirty years those people will be in their 30s, our prime workers. It will be very difficult to maintain production with this hole in our age structure. "

"Maybe so and maybe not" replies the governor. "I don't understand all this technical mumbo-jumbo. You have predicted population problems every year since we landed, but somehow these problems never happen. They are still in the future, you say. If and when these problems that you are so worried about actually do begin, then I will take action to solve them, that's fair enough is it not?"

"But governor, it will be too late then."

"Maybe so and maybe not." mumbles the governor.

Now click on the **+10** button. There is a few seconds delay as the simulation advances 10 years. If you look closely at the screen you can see the changes rippling across the population graph, as the computer calculates a new number

for each age every year. Click again to reach the year 2030. After 30 years at a fertility rate of 0.4, the chart looks like figure 3.

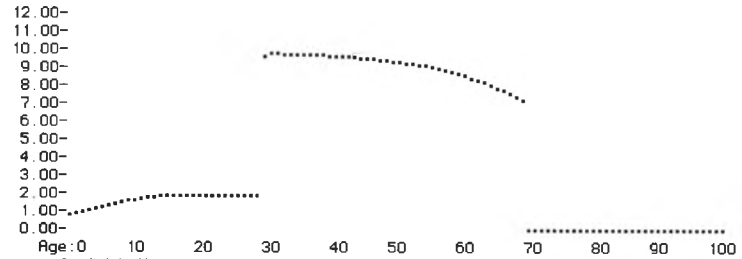


Figure 3

Notice the nearly flat line in the second generation, from about age 10 to 29. This is because during the first 20 years of the colony, the number of babies born was nearly constant, about 200 per year. This happened because the fertility rate was constant, and the number of people in the child-bearing years was nearly constant. Then, as the first generation moved out of the child-bearing years, being replaced by the much smaller second generation, the number of births began to fall, even though the fertility remained constant. This explains the slope of the line from age 0 to 10. Also, the number of deaths has increased greatly because the original population is getting older.

The governor studies the chart and remarks, "We had 81 births this year and 293 deaths, that is a net loss of 212. So the decline you have been predicting has finally happened. But it is small and has not hurt us much. Our total population is 42,247, still larger than when we landed. But I think we ought to act early, we ought to nip this thing in the bud. So I will take steps to increase the fertility rate to 2.1 as you wanted."

"Thank you governor, but we have waited so long that we now need a much larger fertility rate, at least 4.2, in order to survive."

"Now just a minute. You said, that if the fertility rate were 2.1 the population would eventually stabilize; two parents must have two children. Those were your exact words, were they not?"

"True, governor, at a fertility rate is 2.1 the total population would stabilize in the long run, but a lot can happen in the short run, before things settle down. There are now relatively few people in the child-bearing years. At a fertility of 2.1, our total population would decline for many years and our colony could not function with a small population. We need a rate of 4.2 to have a fighting chance for survival."

"Maybe so and maybe not. A fertility rate of 4.2 sounds unreasonable. But, I do see your point. We have too few people in the 20 to 30 age bracket. I want you to study the problem and work out a plan to increase the population in that age bracket, during the next 10 years."

"But..."

"No buts. That is an order. Get busy."

Later you describe your interview with the governor to your friend, Tom. He is astonished. "The governor want you to work out a plan to increase the number of 20 year olds within 10 years? I can't believe it. No one could be that stupid. Even a child knows that it takes 20 years to make a twenty year old person."

At last, the governor does take action. By publicity, tax credits, and other incentives the fertility rate is brought up to 2.2, slightly above the magic number 2.1. (Select **2.2** from the **Fertility** menu and advance one year at a time to see what happens.) The governor is very proud of himself when he sees total population slowly climbing, but the number of deaths continues to increase as the population ages, and then the number of births falls off. Four years later, the governor is astonished when total population begins to decline once again. Use the mouse to advance to 2050. After 20 years at a fertility rate of 2.2, the chart looks like figure 4.

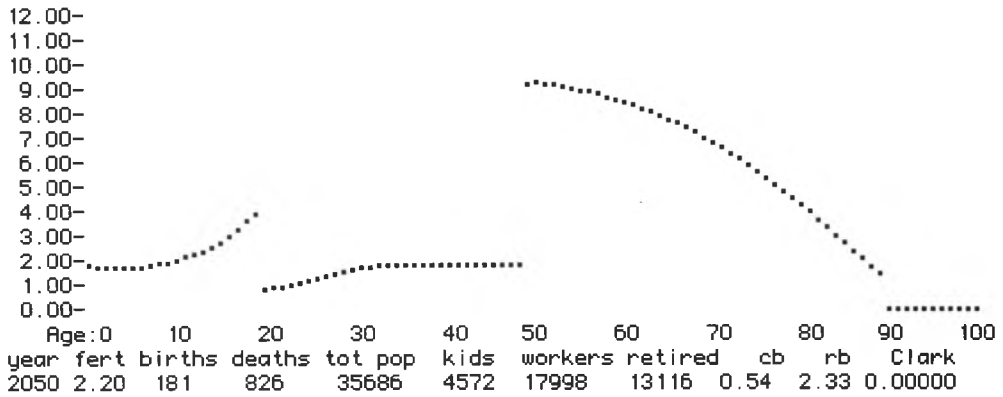


Figure 4

Although the total population has not fallen very far, the number of workers has dropped drastically to 17,998. Also the number of retired people is 13,116 which is quite high relative to the number of workers. Note the number called rb at the bottom of the chart. This stands for "retired burden." It is the number of retired people that each worker must support, but the ratio has been normalized. In other words, rb = 1.00 is the level that we consider normal. If rb is greater than one then the burden is greater than normal. In this case, rb = 2.40 which means that the retire burden is almost two and one half times greater than normal. (We will explain later in more detail.)

Even though things look grim, the governor is optimistic and decides to hold the fertility rate at 2.2. He reasons that 2.2 is above the replacement rate of 2.1, and therefore, the population is sure to start growing, someday. (click the **+10** button twice.) After 20 more years, the population chart looks like figure 5.

Total population is still falling. The Governor cannot understand this, since the fertility rate, 2.2, is above the replacement level, 2.1, and has been for *40 years*. The number of workers is now below 10,000, the estimated minimum needed to keep the colony alive. Also, rb (the retire burden) is 4.04 which means that each worker must support four times the normal number of retirees. As the colony teeters on the brink of extinction, the governor is displaced by a palace revolt.

The colony struggles for survival by raising the fertility rate to 4.4, increasing the retirement age, and taking the most extreme measures of frugality.

You can increase fertility by selecting **type in** from the **Fertility** menu. You may then type in 4.4 and hit the return key. (If you don't like to type, select **4.0** from the **Fertility** menu, and then select **Increase 0.1** four times.) Then advance the program by one or five year steps to see what happens.

Figure 5

Even with this high fertility, the total population continues to decline for 14 years. It is 20 years before the high fertility even begins to increase the number of workers, and it is 51 years, the year 2121, before the number of workers reaches the reasonably comfortable level of 20,000, and emergency measures can finally be ended.

Conclusions

The above story illustrates several points about population. The total population of a nation does not accurately describe the total picture. If one looks at the population distribution by age, one gets a much more clear picture. The growth of the total population is not the best measure of where a population is headed. Growth is births minus deaths. The number of deaths depends on the number of people born 70 to 80 years ago. Therefore, when we look at the present growth rate of a population, we are looking into the past. Fertility rate is probably the best measure of whether a population is growing or not.

Population Momentum

Most people assume, without really thinking about it, that the growth of total population responds immediately to any change in the fertility rate. They believe that the total population must increase in any year that fertility is above 2.1; likewise that total population must fall as soon as fertility drops below 2.1. But this is not correct.

When we think about controlling population, we must remember that population growth has a kind of momentum. When a population has been growing for a number of years, it acquires an age structure that makes growth easy; a relatively large number of people in the child-bearing years, and a relatively small number of older people. The population in our story above had this type of structure in the beginning. That is why it was able to grow for over twenty years, even through the fertility rate was a very low 0.4. The governor, looking only at total population growth, thought everything was fine; he was wrong. The advisor, looking at the fertility rate, knew that trouble was brewing; he was right.

The low fertility rate of the colony used up the positive momentum of the population and then built up a negative momentum. When the fertility rate of any population is too small (less that 2.1) for many years, the number of people in the childbearing years becomes relatively small, while the number of older people becomes relatively large. This causes negative population momentum; the fertility rate must be far above 2.1 to cause such a population to grow.

By 2070 the colony had such a large negative momentum that even a fertility rate of 4.4 could not make the population grow. (It finally began to grow after 14 years.) The momentum of population growth is a real effect, but few people understand it. You are now one of the few.

Archives

Hidden in the program is an "archive" that records important population statistics each year as the system moves forward. Use the **Plot** menu to select **Fertility**. This command plots a graph of the fertility over the years that the system has been simulating. As you recall we started with 0.4, then after 30 years, increased to 2.2, and finally, 40 years later, increased to 4.4. All of this history is shown on the screen.

There is not room on the screen for more than 100 years of data. If you again select **Fertility** from the **Plot** menu, you will see the second 100 years. Note that the fertility falls to zero towards the end of this period. That is because the program has not simulated those years; there is no history. The other **Plot** commands work the same way; select a command once and you get the first 100 years of history; select it twice in a row, and

you get the second 100 years. Now you may look at the other statistics in the **Plot** menu.

The **List** menu works in the same way except that the statistics are displayed on the screen as a table of numbers rather than a graph. Select **Fertility** from the **List** menu.

When you first load a population, the archives begins recording at year one. As you advance forward, the archives record the new data for each year, but can hold only 200 years of data. If you move forward more than 200 years, the archives records the new data each year by writing over old data. You can advance forward 500 or 1000 years or as far as you like. The archives will always hold the most recent 200 years of data.

After you have finished using the **Plot** and **List** commands, select **Rescale** from the **Other** menu. This will put the population chart back on the screen.

Time-Travel

Now we discuss how to use the "time-travel" feature. Use the **-10** button to go back 10 years. The program simulates population changes in reverse and changes everything back the way it was 10 years ago, with one exception; the number of births and deaths are not correct. These numbers are calculated correctly only when the simulation steps forward. Click on **-1** and then on **+1**. The display will now be entirely correct. (You can also use the **Rescale** command to clean up after time travel.)

You are not allowed to change the fertility or the historical statistics when moving backwards in time. The program uses the fertility value recorded in the archives. This insures that, when you back up to a particular year, everything will be exactly as it was before. In this respect, it is just like time-traveling. But when you travel forward again, you can change fertility and thus create a different future.

Now use the mouse to go back to the year 2030 and change history. Increase the fertility to 4.4, which the stupid governor refused to do at that time. Then move forward and see what would have happened if the governor had been wiser.

Now go back to the beginning, the year 2000. You can do this by running the simulation backwards, or you can take the *secret shortcut*; select **Colony** from the **Data** menu. This command starts the space colony population at the beginning; the year 2000. Then advance to 2001, assassinate the governor and set the fertility where *you* think it ought to be.

Automatic Advance

Now select **Forward** from the **Speed** menu. This sets the time machine into forward gear. Then select **Medium** from the **Speed** menu. The program will now advance automatically. Each year will be on the screen just long enough for you to get a good look at it. Now you can lean back and see how things work out when you make the decisions instead of the mentally retarded governor.

As the simulation moves forward, you can change fertility just as before, but the mouse only works while the program is waiting (about half the time), not while it is computing the next year. When you are ready to stop, select **Single-step** from the **Speed** menu.

The Static Population

Now we will discuss the "static" population and the definition of *cb* and *rb*, child and retire burdens. If the fertility of a population is exactly at the replacement rate, 2.1, for a long period of time, that population will become stable or static. In this case, the total population is neither growing nor declining, and there is no change in the age structure. The number of people in each age group remains the same as time goes by. The static population has zero momentum; if the fertility is set above or below the replacement rate, the total population will immediately begin to grow or decline.

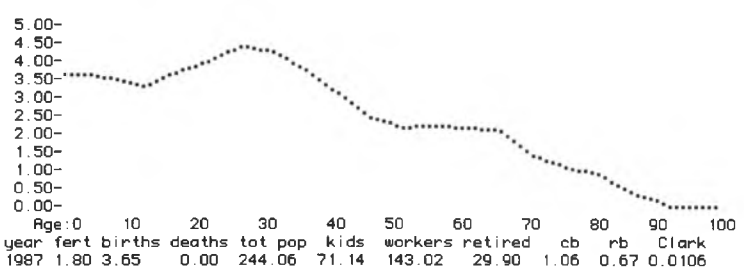
We have selected the static population as a standard for measuring cb, the child burden, and rb, the retire burden. In the static population, 100 workers must support 31.3 retirees. This is the number that we define as normal; in this case rb = 1.00. If each 100 workers must support 15.6 retirees (half of normal), then rb = 0.50. If each 100 workers must support 62.6 retirees (double normal), then rb = 2.00. The program assumes that all workers retire at age 65. The child burden, cb, is computed in a similar way. In the static population each 100 workers must support 47 children and this is defined as normal; in this case cb = 1.00.

You can make a static population by setting fertility to 2.1 and letting it run for a few hundred years. There is normally a static population in the folder with Pop15. You can read it into the program by means of the **Open** command in the **File** menu, selecting the file "Static Pop."

You can save the current status of the active population by use of the **Save** command in the **File** menu. Pop15 will ask you to give some name to the file.

The Population of the United States — 1987

Select **USA-87** from the **Data** menu. This will load in the population of the United States as it is right now. Well, almost now; 1987 is the most recent year for which data is available. This data is from the Statistical Abstract of the United States, a publication of the Census Bureau. The screen should look like this:



The vertical scale is millions of people in each cohort. You can read the history of the United States in this population distribution. Note that the number of people in the older age groups, 70s and 80s, is relatively small. This is because the total population of the United States was much smaller 70 and 80 years ago when these people were born. There is a minor hill at about age 65; this is caused by high fertility during the prosperous "roaring 20s." There is also a broad valley centered about age 50. This valley is the legacy of the great depression of the 1930s. You can see a hill in the population from about age 20 to age 40. These are the "baby boomers" born between 1946 and 1968. There is another valley from age 20 down to age 0. This called the "birth dearth" by some demographers. Fertility has been below the replacement level during the 1970s and 1980s.

Now click on **+1** to advance to 1988; this will compute the correct number of births and deaths. Because of your experience with the fictional space colony population, you will notice that the United States has the same problem as the colony; too few children are being born. The fertility rate is 1.8, well below the replacement rate of 2.1. The total population is still growing because of the great positive momentum in the age structure built up by the baby boomers during 1946 to 1970.

Projection at 1.8 Fertility

The fertility in the USA has been about 1.8 since 1972. This means that we are using up our positive momentum. The birth dearth kids are now beginning to move into the child-bearing years. As they displace the baby boomers, the number of babies born each year will begin to decline, even if fertility remains constant. Run the program forward a few decades to see what will happen if the fertility remains at 1.8.

You will note a decrease in the number of births every single year, while the number of

deaths increases every year. In the year 2014 deaths finally exceed births and the total population peaks at about 260 million and then begins to decline. Negative momentum is building up, so the decline becomes more and more rapid. By 2032 the total population is falling by one million per year.

Advance to the year 2100, and note that total population continues to fall. By 2100 the total US population is down to 169 million and still falling. You can now use the **List** command to look at population statistics between 1987 and 2100.

Total population is widely used, but is not a the best national indicator. The number of workers is a better measure of national strength, since they are the ones who produce goods and pay the taxes. The number of workers is increasing at first, but reaches a peak of 161.5 million in the year 2010. After that workers steadily decline.

The retire burden is now (in 1990) only 0.68, but it steadily increases, hitting a peak of 1.24 in 2036 when the baby boomers retire. It drops off a little and finally stabilizes at 1.22 in the year 2100. This suggests that social security payroll taxes will almost double. The increase in the retirement burden is perhaps the most serious problem in our future. The computer model understates rb for reasons that are discussed below in the section of "Accuracy of Computer Prediction." The retire burden could easily be 30 to 50 percent greater than we have calculated. The social security taxes are now a serious load. Half of these taxes are paid by the employer, which means that they are actually higher than most people realize. These taxes will have to double, or more.

Clearly, the United States is heading for trouble, if the fertility rate does not increase. Now let us see if we can fix the problem.

Projection at 2.2 Fertility

Let us go back to 1990 and then increase the fertility rate to 2.2, just a hair above the replacement rate. The quick way to do this is to select **USA-87** from the **Data** menu, then advance three years, then increase the fertility rate. Next click on **+10** repeatedly until we reach the year 2100. The population events of 113 years are now recorded in the archives. You can look at them by using the **Plot** menu for the big picture, or the **List** menu to get specific numbers.

First let us look at the number of children. This number is falling prior to 1990, but then it begins a steady increase. This is interrupted by a minor dip of about half a million between 2010 and 2020, when the birth dearth kids are in their childbearing years.

The number of workers also increases steadily except for a dip of about 6 million between 2017 and 2041. Total population increases steadily, reaching 321 million by 2100. This is certainly a great improvement over a fertility rate of 1.8, but there is still one problem. The retire burden peaks at 1.10 in 2033, a 61 percent increase over the present rb. An improvement, but still a heavy load.

Projection at Higher Fertilities

Let us go back to 1990 and try a fertility rate of 3.0, and then 4.0. Results are summarized in the table below. The Clark number is a measure of "overpopulation" that we will explain later.

Fertility	peak rb	final rb 2100	total pop 2100	Clark number
1.8	1.24	1.22	169 million	0.0073
2.2	1.10	0.94	321 million	0.0139
3.0	0.92	0.62	943 million	0.0410
4.0	0.78	0.41	2800 million	0.1217

Our Big Problem

The modest increase in total population that the United States is now enjoying is a temporary thing. The number of babies born each year is too small, and has been too small for the past 20 years. Trouble is brewing because our positive momentum is being rapidly used up. Our window of opportunity is

closing as the baby boomers move out of the child-bearing years. We need to increase our fertility rate as soon as possible. Most people are unaware that there is any problem because they focus on the increase in total population, and pay no attention to fertility, like the Governor in the space colony example.

Zero Population Growth

There are many people who feel that the danger of overpopulation is so great that we should do everything possible to reduce population growth. Some feel that the goal should be zero population growth. Let us see what would happen if we followed that plan.

Select **USA-87** from the **Data** menu, then advance three years to 1990. Now select **ZPG** from the **Other** menu. This engages an "automatic pilot" that adjusts the fertility each year so that the number of births is equal to the number of deaths. Therefore population growth is exactly zero, and the total population is exactly constant all the way to 2100 (or as long as you care to run the simulation).

The first thing we notice is a dramatic drop in the fertility rate from the present 1.8 down to 1.21. The fertility rate then immediately begins to increase. It reaches a peak of 2.79 in 2034, then it drops again to a low of 1.71 in 2076. Fertility begins to rise again; it is 2.22 in 2100 and still rising. Look at the fertility curve using the **Plot** menu and you will see that it resembles a roller coaster.

The retire burden still hits a peak in 2036 when the baby boomers retire, but now it is much higher, 1.35, higher than any of the plans listed above. The rb then drops to a low of 0.77 in 2080 and then starts up again. It reaches 0.98 in 2100 and is still rising.

If the United States were to seriously follow the ZPG plan, we would need a huge effort to drastically reduce fertility very quickly to 1.21, then we would immediately begin increasing fertility up to the moderately high peak of 2.79 (this is necessary to hold total population stable as the baby boomers deaths hit a peak). ZPG stabilizes total population but it destabilizes everything else; fertility, number of children, number of workers, and most important, the retire burden. It gives us a roller coaster ride. Our biggest demographic problem, the retirement burden, is made substantially worse by strictly following ZPG.

It is clear that the ZPG people are looking at the wrong measure, total population. Forcing total population to be stable causes a raft of other problems. Assuming that one wanted to stabilize population, it would make a great deal more sense to stabilize the fertility rate; this is much easier to do since there is no need for rapid reversals in the program of incentives, and it has the great virtue of tending to stabilize all the other important population statistics.

Those who advocate zero population growth seem to be unaware of population dynamics, and in this respect, are very much like the governor in the science fiction story in section II.

Accuracy of Computer Prediction

Is this program really an accurate prediction of what will happen in the US in the future? The fertility rate has been about 1.8 for the past 18 years. But it has changed in the past and could change in the future. No one knows how or when it will change. One should not think of this program as a prediction, but as a simulation of what will happen *if* fertility remains at 1.8 (or whatever level you may set).

Mathematically the program is accurate. It uses the fertility profile of the United States at this time. This profile indicates the relative number of babies born to women as a function of age. You can look at it by selecting **Fertage** from the **Plot** or **List** menus. Any change in this profile that might happen in the future would have little effect on the results.

The program also uses the survival profile of the US at this time. This profile tells the proportion of deaths at each age. You can look at it by selecting **Survival** from the **Plot** or **List** menus. The death rate has been going steadily down. It is reasonable to expect that

it will go down more in the future. Possible future changes in the death profile have not been simulated in the model. But such changes would probably have only a modest effect of the results of simulation. The effect would be to increase the numbers of people in the older age brackets.

The future rb or retire burden is probably understated by the program for several reasons. First, the program assumes that people retire at 65. Actually, the average age of retirement is a bit less than 65 now, and the trend is toward still earlier retirement. Second, the trend is toward people living longer. It is a reasonable bet that people will be living three to five years longer when the baby boomers retire. This is also not included in the program.

This program simulates only population changes due to births and deaths; This is what demographers call "natural increase." The effects of people moving into or out of the country (immigration) are not included. The number of people entering the US illegally has been greatly exaggerated in the headlines. The actual number is estimated by Wattenberg at 0.435 million net gain per year (Wattenberg p 24), including both legal and illegal immigration and emigration (people moving out of the country). This number is small compared to the number births per year, presently about 3.5 million. If immigration were included, it would have a small but noticeable effect. Total population would begin to decline perhaps 8 to 10 years later than the time predicted, and the decline would be slower; about 0.6 million per year instead of 1.0 million per year. However the general conclusions would still be the same.

Changes in the fertility rate are difficult to predict, but demographic projections are highly accurate when the people involved have *already been born*. For example, the program predicts that a relatively large number of people will be retiring in the 2011 to 2035 period. These are the baby boomers who were born in the 1946 to 1970 period. This prediction is highly accurate because the baby boomers are already adults. This prediction has nothing to do with the uncertainty of future fertility; the program is only predicting that the baby boomers will get older. This is very close to a certainty.

What it Means to You

Real estate will be a less desirable investment. As the number of young people coming into the housing market falls, the price of houses and apartment buildings will increase less rapidly than in the past and may even fall. This trend should begin in the 1990s and will steadily get worse.

Retirement may also be a problem. It is almost a certainty that, in the next 40 years, there will be a smaller number of workers supporting an increasing number or retirees. The Government does not put Social Security tax money collected from a worker into the bank and then pay it out when that worker retires. Social Security is a hand-to-mouth operation. Social Security taxes, now 14 percent, will have to about double if benefits are to remain the same. It is highly doubtful if workers will accept a doubling of the taxes to the 30 percent range (in the worst case it could be 37 percent — Wattenberg p.70). Note that we are speaking only of social security taxes; this is on top of ordinary income tax. Since the number of workers will be falling, there will be pressures to increase the income tax as well. Perhaps the retirement age will be increased. Perhaps the benefits will be reduced. Something will have to give!

If you are now retired, you should face few problems, unless you live an unusually long time. But your children and grandchildren will have some difficulty. If you were born before 1946, then you may face some problems during the late part of your retirement. If you are a baby boomer, born between 1946 and 1970, then you will face the brunt of the problem. The last of the baby boomers, those born in the 1960s will face the greatest problem. You had best put some money in the bank and not count entirely on Social Secu-

rity. The birth dearth kids, those born after 1970, will be asked to pay greatly increased social security taxes. The late baby boomers and the early birth dearth kids face the worst of both worlds. They will be asked to pay increased taxes before they retire, and then can expect lower benefits after they retire.

Wattenberg believes that American innovation and economic growth will also suffer as the population gets older and smaller (Wattenberg p.73-74).

Present population trends may also affect the balance of military power. The population of nearly all communists countries is growing. The present fertility rate in the Soviet Union is 2.4 (Wattenberg p. 15). Suppose that in the year 2100 the United States, with an aging population of only 180 million is facing a hostile Soviet Union with a younger population of more than 500 million.

Under the spirit of glasnost, the Soviet Union appears less threatening at the present time. Perhaps this happy condition will continue through the next century. On the other hand, Gorbachev may be suddenly replaced by a hard line communist, as already happened in red China. No one knows what will happen in the Soviet Union in the future. It is best to be on the safe side and not depend on luck for our future security.

The communist leaders of China are attempting to level off their population at 1.5 billion, and also industrialize their nation. Perhaps they will fail; perhaps they will succeed. No one knows how things will turn out. But if they have a partial success; if they reach the industrial level of the Soviet Union, they will be a formidable power. Again, it is best to be on the safe side rather than gamble with our safety.

The Cause of Low US Fertility

What is the basic cause of the low fertility rate in the United States? Wattenberg shows convincingly that it is the desire for a small family that is the main factor. People could have larger families if they wanted them. Why don't they want them ? The great publicity about the danger of a "population explosion" is one possible culprit. The fertility rate dropped below the replacement rate just after the "publicity bomb" went off around 1970. Wattenberg lists the following factors that depress fertility:

- urbanization
- more education
- more income
- more working women
- more abortion due to legalization
- improved birth control
- delayed marriage
- later birth of first child
- more divorce
- increased infertility
- increased spinsterhood
- more open homosexuality
- more open lesbianism
- more living together
- women's liberation
- the perceived high costs of children
- environmentalism

Up to now we have treated the population of the U.S. as if it were uniform, but the fertility rates are not the same for all segments of the population. Wattenberg has examined the fertility rate for various groups and has reached some interesting conclusions:

1. The birth dearth is not the fault of blacks. Black fertility is 2.2.
2. The birth dearth is not the fault of Hispanics. Their fertility is 2.4.
3. Asians are not to blame; their fertility is 2.0.
4. It is not the fault of low income families; families with income less that $10,000 per year have a fertility rate of 2.1
5. It *is* the fault of medium income families; those with incomes of $20,000 to 25,000 per year have a fertility rate of 1.7.
6. It is *mainly* the fault of high income families; those with incomes over $35,000 per year have a fertility rate of a suicidal 1.3!

Wattenberg finds that this pattern cuts across ethnic lines. High income blacks and Hispanics also have low fertility rates. (Wattenberg p 77) Since most high income people are well educated it is probably true that educated people have an fertility rate that is too low. In fact, college-educated women

have a fertility rate of 1.4 (Wattenberg p. 76).

A Personal View of The Birth Dearth

I thought it would be interesting to see if my own family was growing or declining. I took a horizontal slice across my family tree, including all people in the same generation. The generation I looked at are old enough that it is reasonably certain that all their grandchildren have been born. My relatives are nearly all college graduates or the equivalent, so they represent a middle to high income group.

Grand Fertility

children children rate

Males:

LD	2	4	2.0
BD	2	5	2.5
EK	2	5	2.5
GG	2	2	1.0
RL	2	3	1.5
TL	3	3	1.5

Females:

HK	3	0	0.0
LK	2	4	2.0
FC	1	3	1.5
EG	2	3	1.5
LF	2	1	0.5
HF	0	0	0.0
MG	0	0	0.0
FD	2	9	4.5
CD	0	0	0.0
ND	0	0	0.0
DL	1	2	1.0
JM	4	4	2.0
LR	1	2	1.0
HC	1	2	1.0

Average Fertility 1.30

average for men = 1.83

average for women = 1.07

Most of the children and grandchildren tabulated above were born *before* the birth dearth period. It is reasonable to assume that the current fertility of this group is even lower than 1.30. You can use Pop15 to find out how many years it takes for a population to half its numbers at a fertility of 1.30. My family is an endangered species. How is yours doing?

Here is an interesting problem. Assume that your family is like mine and has been declining at a fertility rate of 1.3 for the past 50 years. Assume that your family had zero population momentum at the start of the decline. Then what fertility rate is needed to make up the lost numbers during the next 50 years?

Since 1.3 is below the replacement rate by 0.8, it might seem logical that 2.1 + 0.8 = 2.9 is the correct fertility rate. However, we must also overcome the negative momentum that has been build up during the decline. A larger fertility is needed.

This problem can be solved as follows: Select **Open** from the **File** menu. Then select the file "Static Pop." This will load the static population which has zero momentum. Select the **Rescale** command, and then advance by one year to get the correct totals. Write down the year and the total population. Then set the fertility to 1.3 and advance 50 years. This represents the present condition of your family. Note that the total population has declined by about 33 percent, and a negative momentum has been built up. Now set the fertility to 3.0 and advance 50 years. You will see that the total population has not yet recovered; in fact it has actually declined. It will require another 35 years (a total of 85 years) at a fertility of 3.0 to restore total population to the starting value.

The correct fertility needed to restore the total population of your family to the original value within 50 years is just a tiny bit over 4.0. This value is needed, not to grow, but only to recover lost numbers. However, your family would have a positive momentum at the end of this period, so it would be in a good position to grow in the future.

How Many Children?

I suspect that many people make a simple mathematical error in planning how many children to have. They reason that if every family has two children, then the population will remain stable. They overlook the fact that about 12 percent of people will be unable to have any children at all, and that about 13 percent will have only one child and then be unable to have any more. Taking these factors into account, the remaining 75 percent, those who are able to have at least 2 children, must average 2.63 children, to make up for those who are out of the race. If everyone plans to have two children, the human race will die out. If 30 percent of people plan to have two children, and 70 percent plan to have three, then we will be just barely above the replacement rate. In other words, bare survival means that the *typical* family must have at least three children. (The situation may be even worse for well educated people. Since they usually wait longer before getting married, and since infertility increases with age. My own family tree shows 20 percent, with zero children.)

Remember, this is just to break even, just to survive, not to make any gains.

If your family is like mine, and you want to make up for lost ground, as discussed above, the same principle applies. If each person plans to have 4 children, the group average will be less than 4.0 because you must expect some infertility. Each person should aim to have about 5 children, if he can, to reach an average of 4.0.

The Population Panic

Malthus, writing in the time of George Washington, was perhaps the first to assert that population would outgrow food supplies, and we would all starve (Malthus 1798). History proved him wrong and his false theories were almost forgotten.

Prior to 1968 almost everyone considered a growing population to be a healthy one. Then the great population panic began. The ghost of Malthus walked the earth. Books like "The Population Bomb" (Ehrlich 1968) and "The Limits to Growth" (Meadows 1972) claimed that disaster from overpopulation was just around to corner. Movies and TV shows climbed on the band wagon and we were shown a future world in which people were jammed together like rats in a cage. In the movie "Soylent Green" food supplies gave out and a form of cannibalism was used to prevent widespread starvation. Books were written to promote the idea of a small family. One book tells us that "the perfect family" has just one child (Carlson, 1985). Another book claims that people will be happier if they choose to have no children at all (Silverman 1971).

In all this publicity and excitement, hardly anyone noticed that the real experts, the demographers, economists, and agricultural experts, did not all agree that overpopulation was a danger. The reader may be surprised to hear this, but we must remember that sensational disasters are exciting and they sell books and movie tickets. Good news often is overlooked.

Over the past twenty years there has been much rethinking. The disasters predicted by some of the panic people — food shortages, rising food prices and a rapid increase in the value of farm land, did not happen. Some of the panic people have changed their minds, others have changed the arguments that they use. There has been a general retreat by the forces of gloom and doom.

A Rough Estimate

Is overpopulation a real problem here in the USA? Let us consider a few simple facts that you probably already know. You know that the population of Red China is about 1.1 billion, and they are reasonably well fed. If you have looked at a world map you may have noticed that the land area of China is roughly the same as that of the United States. Thus it appears that the US can feed at least 1.1 billion people.

If you check a reference book, you will find that China has only 10 percent good farm land while the United States has 21 percent. This indicates that the US can feed at least 2.3 billion. This is only a quick, rough estimate. As we shall see later, a more careful estimate is much higher.

Does this mean that we would have to go to an inferior diet? No, the Chinese eat less meat that we do, but any nutritionist will tell you that this is a healthy change. The Chinese actually eat better than we do.

The fact the China is now feeding 1.1 billion people is no reason to believe that it could not feed more, if necessary. In fact, the Chinese population is still growing. It is expected to reach 1.5 billion in a few years and leaders do not foresee any problem in feeding that number. But China is a third world nation and they do not use the most productive methods of agriculture.

World Food Production

Colin Clark, a world famous economist at the University of London, has estimated that it takes 27 square meters of land to feed one person, using the best of presently known agricultural techniques. This means that the world can feed 346 billion people, and the United States, having 6.7 percent of the world's land area, can feed roughly 23 billion.

Food can actually be produced with no land at all. Twenty years ago some scientists at General Electric developed a method of growing vegetables indoors under artificial lights called Geniponics (Suran 1987). By adjusting temperature, humidity, and light to the optimal values, they were able to obtain fantastic yields from each plant. They were able to produce 100 kilograms of tomatoes per square meter per year, about five time the harvest of a conventional greenhouse. Unfortunately the method was a bit too costly to compete with dirt farming. But If the price of food rose, this indoor technique would become economical.

It is also possible to manufacture certain foods in a factory without the use of plants at all. Such factories are now used in the Soviet Union to make protein for use in food products.

These two proven techniques, Geniponics and factory production of food, were not considered by Colin Clark. Therefore his estimates of maximum world food production are clearly too low. Moreover, we have not considered the advanced technology that is likely to be developed in the future. Genetic engineering holds great promise. It is clear that 23 billion is a *very* conservative estimate of the maximum population that the United States can feed. We could quite reasonably multiply this estimate by two, or five, perhaps ten.

The Pop15 program prints in the lower right corner of the screen, a measure of "overpopulation" that we call the "Clark number." It is based of Professor Colin Clark's estimate of food production. It is the present population divided by the number of people that could be fed by dirt farming the land on which that population lives. For example, the present population of the US, 244 million, divided by 23 billion gives us a Clark number of 0.0106. This means that the present population of the US is about one percent of the number that the land can feed. In our most optimistic simulation we got the US population up to 2.8 billion, which gave us a Clark number of 0.1217; about 12 percent of the dirt farming limit.

Thus a Clark number of 1.00 means that the carrying capacity of the land is fully used. However, this is not a hard and fast limit, since food can be produced without land, and food can be imported by a nation. The true limit is unknown but might be a Clark number of 5 or 10.

The question of overpopulation involves many factors besides food production. However this is probably the most critical problem; it is perfectly clear that people must have enough to eat. We are forced to conclude that there is absolutely no danger of

overpopulation in the United States as far a food production is concerned.

World Population

When we look at world population, we see a strange pattern.

Nearly all of the first world, the industrialized nations, have low fertility rates; all are below 2.1, the replacement level, except Israel and Ireland (still falling), and New Zealand which is close to 2.1 (Wattenberg, p18). Thus, nearly all of the first world is in the same situation as the US; negative population momentum is building. Some are worse off. West Germany has a fertility rate on only 1.3 (Wattenberg p. 173); the total population has been falling since 1980 (Cleveland p.650).

The second world, the Soviet Union and its satellites and former satellites in eastern Europe, have a healthy fertility rate slightly above the replacement level.

The third world, the underdeveloped nations, have high fertility rates, but those rates are falling.

The demographers have a theory to explain this strange pattern. It is called the theory of demographic transition. In the past, everyone on earth was poor, very few were educated, disease was rampant, birth and death rates were high and in balance. Population growth was positive, but very slow. In the future, everyone will be educated and rich, disease will be rare, birth and death rates will be low and in balance. But during the transition, death rates go down first, before the birth rates. Thus there is a large temporary spurt in population growth before birth rates catch up.

According to this theory, the industrial nations have finished the transition, but the third world is now in the middle. Thus, their large rates of growth are only a temporary phenomenon. If the theory is correct, world population, now 5 billion, will peak at about 15 to 35 billion around the year 2100. Note that 35 billion is only ten percent of Clark's conservative estimate of the carrying capacity of the earth. This theory was the subject of a special issue of *Scientific American* (Piel 1974). Trends in population since then continue to confirm the theory. Singer tells us, "By now there is no reason why anybody who looks at the matter at all seriously should get a wrong picture—although an ordinary citizen whose ideas were formed by information from the 1960s, or by recent but incompetent writers, could easily go wrong" (Singer p.70).

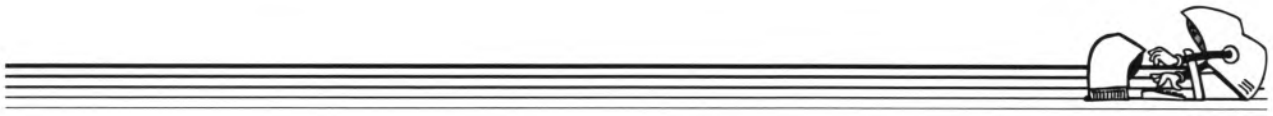
Thus the idea that the world will starve due to overpopulation is most unlikely. Some will object at this point. They will say, "Wait a minute, this cannot be right. There are starving people in this world; I have seen them on television."

It is indeed true that some people have recently faced starvation in Ethiopia, but this has nothing to do with world population; it is caused by drought and civil war. Ethiopia has a communist government. The drought provided the communists with a convenient tool to repress resistance among the people. Countries neighboring on Ethiopia suffered the same drought but their governments distributed food and there was no starvation. A change in the population of other countries would have little or no effect on conditions in Ethiopia, except, that if the population of the US was larger, we probably would have donated *more* food to Ethiopians.

Nonrenewable Resources

Some of the panic people claim that we are running out of minerals and give this as a reason for being worried about overpopulation. First, we should note that many minerals form a major part of the earth's crust. For example, there is more than enough iron to build a 1000 story steel frame building that covers the entire surface of the earth. The same may be said for aluminum, magnesium, nickel, building stone, clay, cement, sand, gravel, glass, silicon, and a number of other minerals. It is impossible to even imagine that we will ever run out of these.

Are you sure you want to live in this future? — Ed.



However, some other minerals are not so abundant. These include copper, molybdenum, cobalt, etc. Some are quite rare such as gold, platinum, iridium, etc. These materials require more careful consideration.

"Non-renewable resources" is one of favorite phrases of the gloom and doom people. They give the impression that using copper is like eating a bowl of cherries; as you nibble, the number of cherries gets smaller and smaller, finally you eat the last one, and that is the end — *no more cherries.*

But this is not correct. The economic way of thinking, teaches us that when we run low of some material, the market price goes up and this encourages reduced consumption, mining lower grade ore, more careful use of that material, more effective recycling, and the use of substitute materials. All of these effects working together are a powerful combination. What this means is that *we will never run out of any material,* furthermore, there *will never be a shortage of any material;* only that the price might go up.

If this sounds a little strange, consider the case of gold. Compared to other minerals, there is very little gold on earth. It has been estimated that all of the gold ever mined on earth would form a cube about 40 feet on a side. If we pretend that gold was abundant in the past and that we then used up most of it, gold can serve as a model for a "nonrenewable resource" after it has been mostly *used up.*

Very low grade gold ore is mined. One ounce to the ton (0.0034 percent gold) is considered rich ore among miners. Gold is used very carefully. The computer on which I am writing this has gold plated contacts. Only tiny amounts of gold are used. When anything containing gold is scrapped, the gold is carefully extracted and recycled. The result is that there is no shortage of gold. You can walk into a gold dealer any day of the week and buy all the gold you want. Of course you must pay for it, and the amount that you want is influenced by the price.

Now let us imagine an extreme case. Let us assume that we really did mine all the gold on earth; There is absolutely none left in the ground. There are still at least three sources of gold that would keep a supply on the market.

1. We would recycle the gold we already have (that was mined in the past). The price would go up and we would recycle even more carefully.
2. We could import gold from the moon, the asteroids, or from other planets. This method has already been used on a small scale to import rocks from the moon. This is expensive, but remember that sending minerals from space to the earth is much, much easier that going from earth to space. That is because gravity helps when one is traveling to the earth.
3. Finally, it is possible to manufacture gold from other materials by the techniques of nuclear physics. This method is very expensive, but it is used to produce Plutonium.

Some would object that we cannot use these last two methods because they are "too expensive." Those who say this have not grasped the fundamental idea of economic thinking; the price will go up until supply and demand are in balance; until we have all the gold that we need.

We have been conservative by discussing only methods that have already been invented and used. It is also possible that entirely new methods will be discovered. Also, improvements in technology will almost certainly reduce the cost of these methods in the years ahead.

"Bowl of Cherries" thinking is an incorrect way of looking at the question of "nonrenewable" resources. Economic thinking is a more sophisticated and a more correct way of looking at the problem. We never run out, we never even have shortages, it is just that the price might go up.

Therefore the question we should ask about a given mineral is not "how fast are we using it up?" but "How fast is the price going up?" When we look at the price history of various minerals, we find that the price trend is not up — it is down for almost all. The reason is that new technology is constantly

being developed. We do occasionally use up a high grade deposit of some ore and are then forced to mine the lower grade ores, but lower-cost ways of mining are being discovered every year. There is a race between using up minerals and inventing new technology, and new technology is winning.

In reality, the long term cost of nearly every mineral is down. The average cost of minerals is now about 25 percent of what it was in 1880, even though the population of the US and the world more than doubled during this period (Singer p.87). Furthermore the average person used only about $170 per year worth of minerals in 1980; about one percent of average income (Singer p. 81). So, if the cost of minerals doubled or tripled, we would hardly notice it.

Waste Disposal

Some claim that we must limit population because we are running out of places to put our trash. The solution is quite simple: recycling. The recycling of aluminum is already a major industry. The recycling of other materials is growing. Again we must adopt the economic way of thinking, with a slight twist. The price of trash is sometimes negative; you don't have to buy it; you get paid for taking it. For example, if you can think of some product to make out of old tires, your business will get paid about $1.00 for each tire you use. As we run out of dumping grounds the negative price of trash will increase. This will encourage more recycling. It will also encourage people to generate less trash, if they must pay the cost.

The Energy Crisis

Energy is also no problem, for much the same reasons. If we run out of oil, we can make gasoline out of coal. This is an old process used on a large scale in Germany during World War II. It might perhaps double the cost of gasoline.

In the long term, we can get all the energy we need from sunlight. In 1987, the Sunracer was driven 1800 miles across the continent of Australia at an average speed of 41.6 miles per hour, winning the first long distance race for solar powered cars (Wilson). Although the Sunracer is not quite a practical car, we can reasonably expect the technology to improve. The state of California now generates about one percent of its energy needs from solar power (wind is an indirect form of solar energy). If and when we run low on oil or coal, solar technology is ready to take over, at about double the cost. But the trend is downward and costs are almost certain to fall still more in the future as technology improves.

Economic Growth

It has also been argued that a high rate of population growth prevents economic progress because society must pay the cost of raising all those children. This sounds reasonable, but there is another side to the question. As you have noticed in the simulations we did with Pop15, high fertility increases the burden of raising children (cb), but it also decreases the burden of supporting retired people (rb). Since retired people tend to cost more than children, high fertility probably *helps* economic growth. If we study nations and compare their economic success with their population growth, we notice little connection. The list below shows that income has much to do with education and industrialization and little to do with population density (Johnson 1988).

Underdeveloped nations:

	persons/sq mi	income/person
Guinea	58	$293
India	582	150
Bangladesh	1740	119

Industrial nations:

Australia	5	$9900
United States	65	11,675
Denmark	307	12,956
United Kingdom	596	7216
Japan	822	8460
Netherlands	1094	9175

A study done to find the correlation between population growth and economic growth found that the correlation in industrial nations was almost zero, but in poor nations the correlation was small, but positive. Countries with a small population growth, under two percent per year, had a median economic growth of 1.1 percent per year. Countries with the highest population growth, above three percent per year, had a median economic growth of 1.8 percent per year (Kasun p. 51).

Pollution

Some of the population panic people argue that a larger population along with economic growth and advances in technology inevitably mean greater pollution of all types. Therefore we must restrict population growth or die from excessive pollution.

Technology can provide the means to control all forms of pollution (at a price). In the late sixties we were told by the gloom and doom crowd that Lake Erie was "permanently dead." But the fish have returned to the lake now. In reality, pollution has been falling in recent years. The air in Los Angeles is more pure now than it was in the 1960s.

The Other Side

Some readers may suspect that I am presenting here only one side of the story, and that the other side has opposite opinions and equally persuasive arguments. The other side does indeed have a different opinion. But when we carefully study what they are saying, we find that they are long on salesmanship, but short on hard facts and solid arguments.

The Lifeboat Analogy

Consider the famous lifeboat analogy. In 1974 Garrett Harden likened to Earth to a lifeboat, which has a number painted on the side to indicate its maximum carrying capacity (Hardin 1974). This lifeboat analogy was a masterpiece of dramatic imagery and has been widely quoted, but few seem to have noticed a curious omission.

Harden did not give any number for the carrying capacity, not even a rough estimate. He gave the impression that world population was rapidly approaching the limit, but gave no numbers. From the tone of Harden's article one might get the impression that the sign on Lifeboat Earth said "Absolute Maximum Capacity 6 Persons," and that the boat already contained 4 persons with hundreds more clambering to get aboard.

But as we have seen, the capacity of the Earth is very large in relation to the present population. Moreover, we cannot set any hard and fast limit. Dirt farming gives us one number, but the possibility of artificial food production allows us to double that number or more. Then when we consider the wild card of future technical progress, the concept of a definite limit seems very hard to pin down.

A more accurate version of Garrett Hardin lifeboat vision would look like this: The sign on the life boat says "Capacity About 346 to 700 or Maybe More" and the boat presently holds 5 people, with the prospect that perhaps 30 more will come aboard. Garrett Hardin himself now accepts Clark's estimate that the earth can feed 346 billion. (Hardin 1988 p. 8)

The Limits to Growth

In the early 1970s, the two Meadows (husband and wife) published a book called "The Limits to Growth." The sales blurb on the cover reads, "A world where industrial production has sunk to zero. Where air, sea and land are polluted beyond redemption. Where civilization is a distant memory."

The book described a computer simulation of world population and its relation to food, industry, and pollution. People are often impressed by numbers that come out of a computer, but bad assumptions lead to false results, whether one uses a computer or just pencil and paper.

A key part of the Meadows simulation was the relation between wealth and fertility. The experience all over the world has been that increasing wealth leads to decreasing fertility. But the Meadows program used the Spengler theory, which asserted that, after a certain point there would be a reversal; increasing wealth would cause increased fertility, a purely theoretical idea. The Spengler theory was radical and doubtful even in 1972; we now know that it is wrong.

The Meadows used several other controversial assumptions, but 18 years of history since 1972 have clearly shown that nearly all the predictions of the Meadows computer program are wrong. We award the Meadows an A for lurid and effective publicity, but an F for accuracy.

This is a good place to point out that the Pop15 program has very little in common with the elaborate Meadows simulation. Pop15 simply computes the natural increase (or decrease) of a population taking the age structure of that population into account. It contains no radical or controversial assumptions.

Exponential Growth

Part of the population panic seems to be based on a very simple misunderstanding of population dynamics. Many writers use the mathematics of exponential growth to predict future changes in population. They make the tacit assumption that if a given population is growing at, say, one percent per year now, and if nothing changes, then that population will continue to grow at one percent every year in the future. This assumption is wrong because it overlooks the effect of population momentum.

For example, one reference book says that the current fertility of the US is 1.8 and the "doubling time" for the total population is 78 years (Cleveland p. 772). It would appear that this "doubling time" is based on the mathematics of exponential growth. Most people reading the reference book would assume it means that if the fertility remains constant at 1.8, then the total US population will double in 78 years. Now that we have run Pop15, we know that this quite wrong. We know that if fertility remains at 1.8, the total population will rise slightly and then begin to decline. Population will not double but will actually fall in 78 years. This misleading information appears, not in a cheap tabloid newspaper, but in no less an authority than the Encyclopedia Britannica. Pop15 was written to help correct this type of misunderstanding.

The mathematics of exponential growth describes a colony of bacteria reasonably well (because the age of a bacterium is not important), but it can be very misleading when applied to human populations. The existence of such misinformation makes it is easy to understand why many believers in zero population growth assume that, since the US population is still growing, fertility is too high and should be reduced.

Conclusions

The good news is that the gloom and doom people are wrong on every point. All over the world, people are getting wiser, richer, and healthier. The production of food, minerals, and other goods per person is going up; the cost is going down. We will never have to go to war over a dwindling supply of anything. There is plenty for everyone.

World population is growing rapidly, but there is every reason to believe that this is a temporary condition. Fertility rates are falling all over the world. World population is expected to level off at about 15 to 35 billion. It is estimated that the earth can feed 385 billion, even without the use of advanced technology. Nobody is in starving or ever

likely to starve, except for political problems in local areas. There is no reason to be worried about the overpopulation of the world. There is even less reason to worry about the danger of overpopulation in the United States.

The bad news is that the fertility rate in the United States is too low. We are heading for trouble unless we increase our fertility at least to the replacement rate of 2.1, and preferably somewhat higher than this. Wattenberg thinks 2.2 is about right. I would favor about 3.0; Those who wonder if we can support such a larger fertility should note that the US fertility rate was 3.7 during the baby boom of the 1950s (Wattenberg p. 16).

According to preliminary estimates there has been a slight increase in fertility in the United States in 1988 and 1989 (Wattenberg 1990). Fertility is still below the replacement rate, but it is a hopeful sign. Unfortunately the fertility of high income Americans is still *far* below the replacement rate.

One consequence of present demographic trends is that minority groups are growing relative to the rest of the population and they will be the majority in the future. Non-Hispanic whites made up 90 percent of the US population until 1955. They are now down to about 75 percent and falling. If present trends continue, whites will become a minority of the total population by about 2056 (Henry p. 30). Of course, whites will become a minority of the number of babies born each year much sooner than this. In California, whites are already a minority of the school-age population (Henry p.29).

It is important to realize that fertility is mainly a function of income level and has little to do with race. The same trend of fertility falling with income cuts across all ethnic lines. Thus the birth dearth has nothing, directly, to do with race. Unfortunately, many people do not know this and the relative increase in the number of non-whites may be causing racial tension that is quite unwarranted. Many whites that I have talked to see the problem as non-whites having too many babies. They do not realize that the problem is actually that whites are having too few babies. Once the true nature of the problem is understood, it is clear that whites can correct the problem themselves simply by having more babies.

Few population experts see any reason to be concerned about overpopulation. But many ordinary citizens are worried because they have been misled by the "population panic people," a small but influential group or writers, newsmen, film makers, and political activists. These people have distorted reality, perhaps because sensationalism sells books and movie tickets. Some appear to have been motivated by political ideology.

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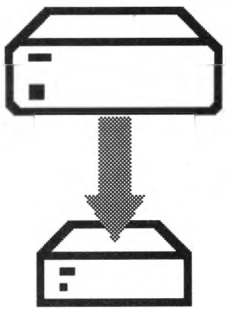
Compactor? — StuffIt Deluxe? — StuffIt Classic? — Disk Doubler?

By Erik C. Thauvin

I've seen so many tests on archiving programs, the problem is, none of them were giving me the answers I was looking for. All the tests I've seen or read about have been made using the Finder, which I think is useless since many of us are using MultiFinder. I like the idea of archiving a file while I'm typing away in MS *Word* or doing something else. I do not like sitting around waiting for a file to be compressed.

As usual, the best way to get the facts is to do it yourself, so here are the results of the tests I ran.



System Used

- Mac SE/30, 5 megabytes of RAM, System 6.0.5, running Microsoft *Word 4.0* (active window) and *Disktop 4.0* (in the background)
- MS *Word 4.0* is using up 1024 K of RAM, the Finder was set to 300 K , and the System at 1803 K.
- StuffIt Deluxe requires 850 K in order to run, StuffIt Classic 1.6 needs 600K, Compactor 1.21 uses 505 K, Disk Doubler 3.0c (the application that is) will run with 200 K available.

Files used for the test:

Microphone II v3.0

(43 files in a folder): 2029 K

ClipArts (Bitmap, EPS...)

(22 files in a folder): 1022 K

Sounds in Suitcases

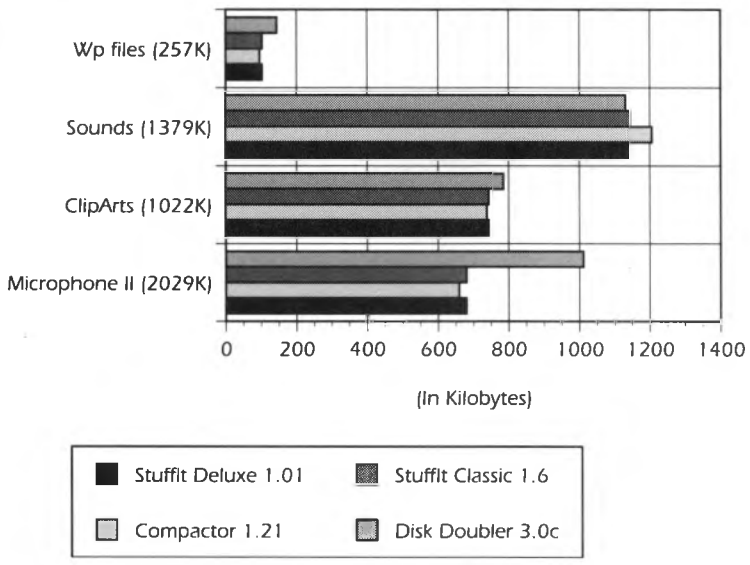
(19 files in a folder): 1379 K

Word Processor Files

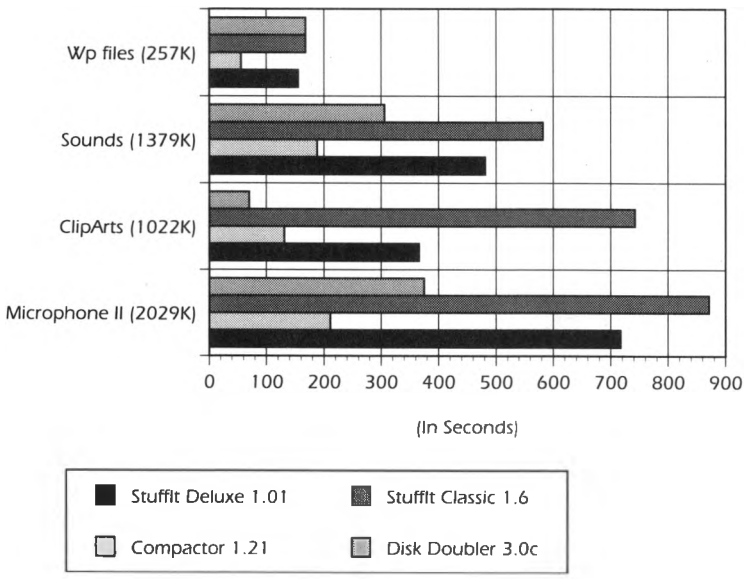
(Microsoft Word 4.0, MacWrite II, WriteNow 2.2)

(53 files in a folder): 257 K

KBytes Saving Chart



Compression Time Chart



Do I need to say more?

Compactor 1.21 seems to faster and compress better than the others on almost all type of files...but let's try to be fair and have a closer look at our contestants:

Compactor 1.21	StuffIt Deluxe 1.01	StuffIt Classic 1.6	Disk Doubler 3.0c
• Background task allowed	• Better compression • All optimizers checked • Background task allowed	• Better compression • Background task allowed	• Smallest compression • Method A & B

Pros:

Compactor 1.21	StuffIt Deluxe 1.01	StuffIt Classic 1.6	Disk Doubler 3.0c
-Super Fast Compressing -MultiFinder friendly (even in the background) -Encryption -Password Protection -Opens StuffIt 1.5.1 archives -Easy to use interface -Validate feature -Shareware	-Fair Compression -Text and Picture viewers -Scripting, Macros -Encryption capability -Password protection -Segmenting -Can move/copy files inside or between archives -Optimizers -Comments with user signature -DeArc, UnZip, UnHex, UnPack -Easy to use interface (fancy too!) -Magic Menu INIT that let's you Stuff and UnStuff right from the Finder -Virus Detection	-Fair compression -Auto-extraction capabilities -Can open StuffIt 1.5.1 and Deluxe archives -Segmenting -DeArc, UnZip, UnPack, UnHex -Easy to use interface -Shareware	-Fair Compression -Handy DD INIT that let's you perform compressing, decompressing, join, and splitting files right from the menu bar in the Finder -Double clicking an archive and will automatically uncompress it and open up the application, if available, then recompress' it when you quit. -Let's you open documents that are archived from the open/find dialog window and uncompress them automatically. -MultiFinder friendly (even in the background) -Segmenting -Joining -Grouping -Easy to use interface -Can open StuffIt 1.5.1 archives -Very reliable

Cons:

Compactor 1.21	StuffIt Deluxe 1.01	StuffIt Classic 1.6	Disk Doubler 3.0c
-No real segmenting, you have to use floppies in order to be able to segment a large file -Auto-extract not reliable -Slow compressing	-Slows down the whole computer under MultiFinder, allows background tasks but doesn't work in the background -No auto-extraction capabilities -Commercial Program	-Very slow compressing -No password or encryption -Slows down the whole computer under MultiFinder, allows background tasks but doesn't work in the background.	-Somewhat slow compressing with certain type of files -No password or encryption -Commercial Program

So what should we use?...

Well, first of all we should know what we need archiving programs for? I would say the most common use is related to uploading or downloading files on public services such as America Online, CompuServe, GEnie, or local BBS's. Archiving a file will save time and money while online. The catch is, these services require you use either StuffIt Classic, StuffIt Deluxe, or Compactor. Disk Doubler isn't really meant for use transferring files since it *unstuffs* the archive before sending it.

This leads to a second use: Personal Archiving. Sounds like we'll need more than one program to do both. Well, maybe or maybe not. The question is to know exactly what you want. What we need is a good archiving program that is fast, reliable, and appointed as a standard all around.

I can hear you from here "Let's use StuffIt then..." Well, I disagree with that. Let me put it this way, if you had enough money to buy a Porsche or a Ferrari, what would you choose? The Porsche has really fancy, onboard computers and electronic gadgets that the Ferrari doesn't have. Also you would probably buy the Ferrari because it's a faster car. Well, it is the same with StuffIt and Compactor. Compactor is the fastest one around and also seems to be the one that compresses the most. But then you lose all the fanciness of StuffIt Deluxe or Classic. What a dilemma!

What first attracted me to StuffIt Deluxe were the optimizers. I thought it was worth waiting a little bit longer while it would compress a lot more. The problem is that StuffIt Classic compresses the same, slower but same savings. But then StuffIt Deluxe comes with a Magic Menu INIT that let's you perform all the stuffing features right from the menu bar in the Finder, but so does Disk Doubler.

Disk Doubler lets you double click on an archived file and it automatically launches the application. It even let's you open archived files right from the open dialog box, a very handy feature.

This is getting complicated; which one to choose? Well, I don't think that there is one archiving utility leading the pack out there, no matter what, you'll need to have at least two utilities available to keep up.

Personally, I use Compactor as much as I can, and then turn to StuffIt Classic. There is no way I can rely on Compactor alone, with the auto-extraction feature that does not work most of the time. But I can't rely on StuffIt either because it is too slow and the difference in space saved is minimal. So here it is, stuck with two different formats.

As a final note, StuffIt as been around a lot longer than Compactor but that doesn't mean it's better. One of the things I do most often is archive a huge file on floppies and segment it. Most of the time when I need to unarchive it, I realize that one floppy of the set I used had some bad sectors and I end up being unable to recover it. The only program that will let me avoid that problem is Compactor. It has the validate function that lets me verify the contents of the archives after compressing so I can make sure that I'll be able to retrieve it. StuffIt Deluxe doesn't do that, nor does StuffIt Classic. This may sounds pointless to you, but it make a whole difference to me.

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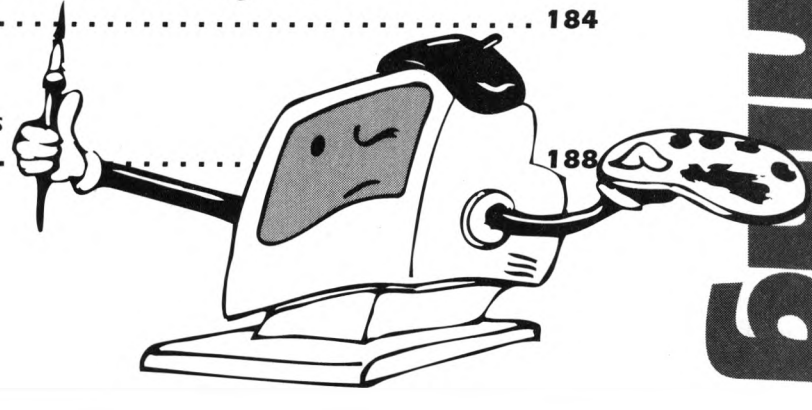

How To Open Bit-Mapped and Object-Oriented Graphics

by Manny Roizen

All Macintoshers are divided into three classes. First are the beginners, sometimes termed humorously, not pejoratively, nerds. Next come the intermediates, those who

have experienced crashes and survived, those who have come to the unwelcome and unwanted conclusion that it's better to know a lot about a little than a little about a lot. And, finally, there are those whom makers of training disks, videos, and cassettes term advanced, power users, or mavens.

The 51 BMUG Picture Disks (as of this date—August 1990) contains 1,628 graphics, images, and pictures. These are divided into seven formats which are labeled, in abbreviated or acronymed semantics: PNTG, SCRN, PICT, DRWG, RLE, EPS, and TIFF.

If you're one of the third class of Macintoshers, then all this is not Greek or Sanskrit to you. However, if you're a novice or perched precariously in the purlieus of the middle classes (computer-wise, that is), then it *is* Greek or Sanskrit....

And, as such, you and I are both delighted when we read that there are several programs—DAs, demos, and applications—for viewing the various picture formats, and that there are commercial applications for opening and manipulating graphic images. Furthermore, the DAs and demos are included in some of the BMUG Picture disks, although the commercial applications are not.

When it comes to those commercial applications, it is that famous (infamous?) 15%—85% graph curve: 15% of the citizens pay 85% of the income taxes, or 15% of the people dictate how 85% of the people are educated, or 85% of the workers work for 15% of the non-workers.

So how many of the commercial applications for opening and manipulating graphic images do the 85% percent of Macintoshers own? According to the graph, about 15%.

What's equally frustrating is that I, one of the 85% who own (say) 15% of those applications, don't know how to use all of them to open and manipulate the 1,628 BMUG Picture Disk graphics, images, and pictures. But I have, by trial and error—more error than trial—learned some simple and easy procedures to open and manipulate practically every one of the 1,628.

Mind you, these procedures are not, *emphatically not*, the only ways to open and manipulate, nor the simplest and easiest ways, but are just the amateurish ways I know to open and manipulate them. I hasten to add that I will continue my research (a euphemistic word for trial and error) to ferret out simpler and easier ways. And when I do, I will update this HOW TO booklet (turned article).

And to those advanced, power users and mavens, my sincerest apologies for seeming to make so much of the trials and tribulations of opening and manipulating PNTG, SCRN, PICT, DRWG, RLE, EPS, and TIFF formats. I ask your indulgence of my efforts, and I ask you to share your knowledge of simpler, easier procedures.

Install in your Computer:

Art Browser 1.0b6, a DA which views EPS images, available on the BMUG Picture 15 disk

Display RLE 1.1, a DA which views RLE formats and can create an RLE file from any image pasted in the Clipboard or Scrapbook, available on the BMUG Picture 20 disk

Display RLE 2.1 Image, a DA available on the BMUG FKey 1 disk

Picture Book Demo 2.0, a demo version of a commercial application for replacing the Scrapbook DA, available on the BMUG Picture 43 disk

ViewPaint 1.7, an application that views Paint and Startup Screens, available on BMUG Picture disks nos. 1, 2, 3, 4, 5, 9, 12, 13, 14, and 28

YAPS, an application to view Paint files, available on BMUG Picture 11 disk and on the BMUG Graph 1 disk

Stuffit/UnStuffit 1.5.1, a utility, available on the BMUG Telecom 1 disk

Chapter 1

PNTG (Painting)

Almost two thirds of the 1,628 graphics in the 51 BMUG Pictures disks are PNTG-formatted. PNTG graphics are bit-mapped (72 dots/pixels per inch) images that can be opened and manipulated by a number of commercial applications.

To open a PNTG image and place it in the Scrapbook for future use and manipulation, using MacPaint:

1. Launch MacPaint
2. Open the BMUG Picture disk containing the PNTG graphic
3. Double-click on the PNTG graphic
4. The graphic appears on the MacPaint screen. Select the **Marquee** tool from the Tools menu and enclose the graphic in a marquee
5. Choose **Copy** from the Edit menu
6. Choose **Scrapbook** from the Apple menu
7. From the Edit menu click on **Paste**. The graphic will then appear in the Scrapbook
8. Close the Scrapbook, then quit MacPaint

The graphic is now in the Scrapbook and is available for future use and manipulation. (See the procedure to copy the graphic from the Scrapbook at the end of this article.)

Chapter 2

SCRN (Screen)

The function of the format SCRN is to have a paint document serve as a startup screen.

Using MacPaint, here's a simple, easy procedure to open a SCRN graphic from a BMUG Picture disk and store it in the Scrapbook, waiting to serve you at your convenience (the same procedure as for the PNTG format—Chapter 1):

1. Open the BMUG Picture disk containing the SCRN graphic
2. Launch MacPaint. Then, from the File menu, select **Open**
3. When the MacPaint Dialog Box appears, use Drive to locate the SCRN graphic wanted, highlight it, then click **Open**
4. The graphic appears on the MacPaint desktop. Select the **Marquee** tool from the MacPaint Tools menu and enclose the graphic in a marquee
5. Choose **Copy** from the Edit menu
6. Choose **Scrapbook** from the Apple menu
7. From the Edit menu click on **Paste**. The graphic will then appear in the Scrapbook
8. Close the Scrapbook, then quit MacPaint

The graphic is now in the Scrapbook, waiting your pleasure.

Chapter 3

PICT (Picture)

PICT is an object-oriented graphic file format that draws on information available in the Macintosh computer's QuickDraw Toolbox. QuickDraw is an application program interface built into the Macintosh System software that defines object-oriented graphic routines, so that graphics, windows, and menus can be displayed on screen the same way by any application program. Just as for PNTG graphics, there are many commercial applications for opening and manipulating PICT images.

The following procedure to open and store a PICT graphic was done using MacDraw:

1. Open the BMUG Picture disk with the PICT-format graphics
2. Launch MacDraw and click **Open**
3. In the MacDraw Dialog Box that appears on the desktop, choose **Drive** to find the PICT file, highlight it, and click **Open**
4. The selected PICT file will appear on the MacDraw desktop. Select it with the Pointer
5. Then choose **Copy** from the Edit menu
6. Select **Scrapbook** from the Apple menu and when it appears, click **Paste** from the Edit menu
7. The PICT graphic will now be stored in the Scrapbook. Close the Scrapbook and quit MacDraw

The PICT graphic is now in the Scrapbook and awaits your command.

Chapter 4

DRWG (Drawing)

DRWG is an object-oriented graphics program that stores the components of drawings (lines, circles, curves) as mathematical formulas rather than as a configuration of bits on-screen. Unlike images created with Paint programs, line art created with a Draw program can be sized and scaled without distortion, and it prints at a printer's maximum resolution (detailing).

The following procedure to open and store a DRWG graphic was done using MacDraw:

1. Open the BMUG Picture disk with the DRWG-format file
2. Launch MacDraw and click **Open**
3. In the MacDraw Dialog Box that appears on the desktop, choose **Drive** to find the DRWG-format file, highlight it, and click **Open**
4. The DRWG selected will appear on the MacDraw desktop. Select it with the Pointer
5. Then choose **Copy** from the Edit Menu
6. Select **Scrapbook** from the Apple menu and when it appears, click **Paste** from the Edit menu
7. The DRWG graphic will then be placed and stored in the Scrapbook. Close the Scrapbook and quit MacDraw

The DRWG graphic is now in the Scrapbook and awaits your command.

Chapter 5

RLE (Run-Length Encoded)

What Run-Length Encoded means, I do not know. RLE is known as a PICT file format whose function is the viewing and transferring of pictures as text.

The following procedure to open and manipulate a RLE graphic was made using the Display RLE Image DA:

1. Open the BMUG Picture disk that contains the RLE graphic
2. Select **Display RLE Image DA** from the Apple menu
3. Click the lower left corner icon in the lower left corner of the Display RLE Image Dialog Box
4. Choose **Drive** in the RLE Picture Dialog Box to locate the RLE graphic wanted. Then highlight it and click **Open**
5. When the RLE graphic appears on the desktop, choose **Copy** from the Edit menu
6. From the Apple menu select **Scrapbook**, then choose **Paste** from the Edit menu
7. The RLE graphic is now placed in the Scrapbook
8. Quit the Scrapbook, then close the DA

The RLE graphic is now in the Scrapbook, waiting for you to copy and manipulate it.

Chapter 6

EPS (Encapsulated PostScript)

The EPS format is a high-resolution (detailed) graphic image using instructions written in the sophisticated PostScript page-description language. It can be scaled and sized without any distortion and printed without sacrificing any quality.

The following procedure was created using the Art Browser DA:

1. Open the BMUG Picture disk containing the EPS graphic wanted
2. From the Apple menu select the **Art Browser DA**
3. The EPS Dialog Box appears. Choose **Drive** to locate the EPS graphic wanted, then highlight it and click **Open**
4. When the EPS graphic appears on the desktop, select **Copy** from the Edit menu
5. From the Apple menu select **Scrapbook**, then select **Paste** from the Edit menu
7. Quit the Scrapbook, then close the Art Browser and the BMUG Picture disk

The EPS graphic is now placed in the Scrapbook to await your command.

Chapter 7

TIFF (Tag Image File Format)

TIFF is the most flexible and reliable method for storing bit-mapped images with high resolution (detail). It is the standard format for scanned images, such as photographs.

The following procedure was created using PageMaker:

1. Open the BMUG Picture disk with the TIFF graphic wanted
2. Launch PageMaker, select **New** from the File menu, then select **Place** from the File menu
3. When the Place Dialog Box appears, use **Drive** to locate the TIFF graphic wanted, highlight it, then click OK
4. The TIFF will appear on the PageMaker desktop. Use the Pointer to position it, then select it
5. Choose **Copy** from the Edit menu
6. Select the **Scrapbook** from the Apple menu, then click **Paste** from the Edit menu. This places the TIFF graphic in the Scrapbook
8. Close the Scrapbook, then quit PageMaker

The TIFF awaits you in the Scrapbook. (See the Appendix for how to copy the graphic from the Scrapbook.)

To Place a Graphic or Text...

From the Scrapbook Into an Application:

1. Launch the application
2. Select the **Scrapbook** from the Apple menu
3. Scroll to the graphic you want, then click **Copy** from the Edit menu and close the Scrapbook
4. When the application reappears on the screen, click **Paste** from the Edit menu and the graphic will appear in your application—ready, willing, and able to obey your commands

From an Application Into the Scrapbook

1. Launch the application, open the file containing the graphic/text, and select the graphic/text
2. From the Edit menu, select **Copy**
3. Then from the Apple menu, select the **Scrapbook**
4. When the Scrapbook appears on the desktop, select **Paste** from the Edit menu. The graphic or text will then appear in the Scrapbook
5. Close the Scrapbook and quit the application

To Import a Graphic (MPNT, PICT, EPS, TIFF) or Text Into PageMaker

1. Launch PageMaker
2. From the File menu, select **Place**
3. When the Place Dialog Box appears, use **Drive** to locate the graphic or text wanted, then highlight it and click **OK**
4. The graphic or text will then appear in the PageMaker document. Use the Pointer to position the the graphic or text

If Unable to Open the Graphic or Text for Importing Into PageMaker

1. Open Word
2. From the File menu, select **Open Any File**—which it will in almost every case.
3. When the Word Dialog Box appears, choose **Drive** to locate the file/graphic/text you wish to open. Highlight it, then click **Open**
4. Your selection should appear in the Word document. You can then position and manipulate it

Using A Laser Parlour

Over the River and Through the Woods, To The Print Shop We Go

by Randy B. Singer

Very few of us can afford to buy a laser printer for our personal use. The obvious solution, when we need high-quality copy, is to take our files to our local desktop publishing emporium/printshop/laser parlour and rent time on a Macintosh and laserprinter. Unfortunately, often the results are less than satisfactory. Somewhere between our home Macintoshes and the final printout, the formatting of our documents is changed, requiring expensive reformatting at the printshop. This article will detail how to avoid the common problems associated with using a laser parlour.

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When you have finished creating a document, while still using your own Mac, you will get the document ready for the printshop by doing the following. I highly recommend formatting your document using Postscript fonts (e.g.Times or Helvetica). If you are going to use a laserprinter, you might as well take advantage of the best-looking fonts. Keep track of which fonts you have used in your document. You will need to know this later when you gather up your fonts to take with you to the printshop. Now make your final formatting decisions. Make sure that all the page breaks fall where they will look best, that automatic page numbering is chosen if you want it, etc.

Note to ATM (Adobe Type Manager) users: If you normally use ATM at home, before your final formatting of your document, you will have to turn ATM off, close your document, reopen it, and reformat your document without ATM running. The Macs at the printshop are unlikely to be using ATM so documents formatted using ATM will not be properly formatted when opened on the Mac at the printshop.

Make sure that Laser Prep and LaserWriter are in your system folder. Select the Chooser from the DA menu while within the document that you intend to print. Click on the LaserWriter and then close the Chooser. Now, choose **Page Setup**... . Select all the appropriate settings. *Do Not* choose **font substitution** since that option will substitute Postscript fonts for certain bitmap fonts that you may have used; the result is sure to be a change in the formatting of your document. Rather, leave it unchecked, and if you want to use Postscript fonts, then do so when you format the document itself. Don't have the computer do it for you. Check **text smoothing** if you are using bitmap fonts, it will usually make them look better. Also check **Faster Bitmap Printing** if you have used bitmap fonts in your document, as this never seems to hurt anything.

Now click on **Options** in the Page Setup... dialogue box. If you are using bitmapped fonts in your document, click on **Precision Bitmap Alignment** in the new dialogue box presented; it will make the fonts look better. Also, I always check "Larger Print Area". It makes the margins look better on the final copy. Whether you should check any of the other boxes in this dialogue box depends on your needs. Now *save your document* and quit.

Every time that you make a trip to the printshop, you will be taking three floppy disks with you that you will have made.

The first floppy will contain the latest version of Disinfectant (2.3) by John Norstad of Northwestern University (a free antiviral utility available from the BMUG BBS). Also on this floppy, put a copy of your System and Finder. Label this disk *Disinfectant*. ***Lock this disk*** by flipping up the black write protect tab on the floppy so that you can see through the square hole! This will prevent any viruses from getting on this disk.

Disinfectant is available on the BMUG BBS
415/849-BMUG
or on floppy disk ($4) from
BMUG
1442A Walnut Street, #62
Berkeley, CA 94709-1496
415/549-BMUG

On the second floppy, put the application (program) that you used to create the document that you want to print (e.g. MacWrite or Word). Also copy onto this floppy any preference files that the application has created and put into your system folder. Label this disk *Application. **Lock this disk!***

On the third disk put the document(s) that you wish to print, a copy of the Font/DA Mover, and, finally, using the font/DA mover, create a suitcase on this floppy that contains all of the fonts that your document uses. (Do this by opening the Font/DA Mover. On one side click on **open** and then on the **drive** button until it indicates the floppy drive where your disk is inserted. Then click on **new**. Give the suitcase a name, like *fonts* and then click on **create**. Now click on **open** on the other side of the Font/DA Mover window. Find and copy the fonts that you need into the new font suitcase that you have created on the other side of the window by highlighting the fonts that you need, and then clicking on **copy**. When you are done with this, click **quit**). Check to be sure that a font suitcase now exists on this floppy. The final items you need to put on this floppy are the Postscript files for your fonts (if any) that reside in the system folder on your Mac. (Not all Postscript fonts have these. If these files exist they will have the same names as your fonts, but their icons will not be of a suitcase. Usually their icon will have be of a printer or just an interesting design.) Label this disk *Document. **Lock this disk!***

All of the things that you have put on these floppies may not be necessary, but it is a good idea to be prepared for any eventuality to avoid frustration at the print shop. I have left out the Laser Prep and LaserWriter files from these floppies, since I assume that if the printshop has a LaserWriter, their Macs must have the driver for it on them.

When you get to the print shop the first floppy that you will be using will be your Disinfectant floppy. Choose **Restart** from the Special menu of the Mac and then immediately insert the Disinfectant floppy. Since this floppy has a System and Finder on it, it will become the startup disk. Open Disinfectant. Click on **Scan**. If any viruses are detected, click on **Disinfect**.

If Disinfectant finds the Scores virus during its scan, the System and Finder on the hard disk may be corrupted (this is a common occurrence when the System has been infected with Scores, even after the Scores virus has been removed by Disinfectant). In that case, you have three options. You can ask the staff at the printshop to replace the System and Finder on the Hard Disk with fresh copies. You can replace the System and Finder on the hard disk with the copies on your Disinfectant floppy. (But then all of the fonts that were in the printshop's system will be deleted and will be unavailable to the next user. If you choose this option, please tell the printshop staff about the need to replace the fonts in the System.) Or you can wash your hands of the whole situation and ask to use a different Macintosh (but be polite and tell the staff at the printshop that the System on that Mac is corrupted and that they must eventually fix it by replacing the System and Finder with fresh copies).

Why have you gone through all this trouble? Because printshops are notorious for being the bathhouses of the computer world, where viruses spread unchecked; and a virus can keep your document from printing correctly. (If you did find that the Mac at the print shop was infected with a virus, and you want to be a good guy/gal and make friends with the person who works at the print shop, you can offer, when you are all done with your work, to disinfect all of his/her Macintoshes. Other Mac users will be happy you did.) Quit Disinfectant and choose **Restart** again from the Special menu. Your Disinfectant floppy will be ejected, and the hard disk will again become the startup disk.

Now, look to see if the application you used exists on the hard disk of the Mac at the printshop, either by using the Find File DA, or by just looking around on the desktop and through the folders of the Mac. (There

shouldn't be many files on the print shop Mac, and even fewer applications. You can make the job faster by choosing **By Icon** in the View menu.) If your application already exists, and it is the same version, fine; if it does not or is not, copy it onto the hard disk from your Application floppy. Go into the system folder and drag to the trash all the preference files for your application that you can find. It might be easier to do this if you choose **By Name** from the View menu. Copy your preference file into the system folder from the Application floppy. Eject the Application floppy.

At this point it might be a good idea to use Find File and have it check for System (but not System Folder) and then, after that, for Finder. If there is more than one System and one Finder on the hard disk, the Mac will perform very erratically. Drag any extra Systems and Finders that you find into the trash, leaving only one copy of each in the system folder (if there is one, the System and Finder may simply be on the desktop, not within a folder) on the hard disk of the Mac.

Insert your Document floppy and double click on your font suitcase. On one side the fonts that you brought will appear. On the other side click on **Open**, then search for and open the System. Check to see if the System already has your fonts installed. If it does not, add them by highlighting the names of the fonts you brought and clicking on **Copy**. Quit the Font/DA Mover. Drag any Postscript files for your fonts from your Document floppy into the system folder on the hard disk.

Finally you are ready to print your document. Your Document floppy should already be inserted. You can print your document by opening it from the floppy, or you can copy it to the hard disk and open it there. It will print a little faster from the hard disk. Look through your document and make sure the formatting is correct. If you have followed all the above suggestions, it is probably perfect. If not, make any changes necessary. If you have opened your document from the floppy it will be necessary to eject the floppy and unlock it before you can make any changes. Select **Print...** under the File menu, click on any buttons that are appropriate in the dialogue box that appears, and then click on **OK**. That should do it.

This process sounds long. But in practice it takes less than ten minutes and eliminates the frustration of having to reformat and reprint your document at the printshop because of a poor outcome (all while you are paying by the minute to use their Mac). Don't forget to drag into the trash, or otherwise remove, any programs, fonts, or documents that you have copied onto the printshop's hard disk. Also, remember to eject and take all your floppies home with you. Good Luck!

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Printers: Which One For Me?

by Randy B. Singer

One of the most commonly asked questions at BMUG meetings is: "What are the best deals on printers for the Mac?". There are several different answers to that

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question, depending on your needs and your price range. The best answer for you may depend on the package that you put together. Here are the best deals that I know, as of November 1, 1990, listed in order from least expensive to most expensive. The prices quoted are street prices (i.e. your price). Prices, inevitably, will have gone down by the time you read this, but relative values are likely to remain the same barring new product releases.

I haven't recommended any 24-pin printers. For now, I feel that the ink-jet printers that I will now talk about, with their superior print quality, quieter operation, and similar price, keep 24-pin printers from being a good buy. This will probably change as the price of some 24-pin printers drops. In the future I will probably test one of the less expensive 24-pin printers, like the Epson LQ-510, using a combination of *PrintLink Express* and a ParaLink to make it Mac-compatible. It should be possible to put together such a package, which would produce letter-quality output, for around $439.

Olympia NP 30

$249 at Modern Accessories for Computers (M.A.C.), 2156A University Ave., Berkeley, CA 94704 , 415/644-0500, 800/282-2622

This printer is an ImageWriter I clone. It is a nine pin printer that can be described as slow at best. You can only get letter quality printing with it if you use bitmapped fonts specially designed for the ImageWriter, such as Boston II or Clairvaux (both are shareware, and are available from BMUG on floppy for $4 per floppy). The Olympia is a good printer if your printing needs are modest, or if you need a printer and are strapped for cash. It is stone-reliable and uses cheap Epson ribbons. This printer is not as inexpensive as the similar Seikosha SP1000 printer, but it is faster (relatively speaking) and has better paper handling features.

Canon BubbleJet BJ10e

$379 from Laser Technologies, 4053 Harlan Street #116, Emeryville, CA 94608, 415/420-8127; GDT Softworks' JetLink Express:, $85 from Programs Plus, 75 Research Drive, Stratford, CT 06497, 800/832-3201; and the Johnathan Freeman Technologies' ParaLink, $74 from Epson Supplies and Accessories, 800/873-7766 (the JetLink Express and the ParaLink are available as a bundle from Programs Plus for $179). Total Package Price: $538.

The Canon BubbleJet BJ-10e is an amazing inkjet printer the size of a notebook weighing only 4.4 pounds, but which prints at 360dpi (!) and uses plain paper. This package prints outline fonts with quality practically indistinguishable from a laser printer and is also compatible with *Adobe Type Manager* (*ATM*). Though it can run on a battery, making it a true portable, to adapt it to printing with a Mac requires a serial to parallel converter which needs to be plugged

into an electric outlet. Therefore, this printer package can only be considered a *trans*-portable (so maybe it is still an appropriate companion for a Mac Portable, which is often used only as a transportable). It is very quiet at a rated 45 db. The best part is that the printer alone has a street price of $379. (I've seen it advertised for less, but, upon checking, these have turned out to be come-on artists that don't have the product in stock.)

When I first saw the BJ-10e I discovered that it only emulates an IBM Proprinter X24E and has no provision for a serial interface. However, I was so impressed with this printer that I had to find a way to make it work with a Mac. I had past experience with the Grappler and wanted to avoid it at all costs. The answer came in the form of the Johnathan Freeman Technologies' ParaLink and GDT Softworks' *JetLink Express*.

I don't know of anyone who has been very happy with the Grappler because of its slow speed and idiosyncrasies.

The ParaLink is a smart serial to parallel converter that allows the Mac to be connected to a printer that only has a parallel input port. The ParaLink Express will transfer data at an amazingly fast 57,600 bits per second! *JetLink Express* is a collection of printer drivers that allows the Mac to communicate seamlessly with any printer. The *JetLink Express* package includes a specific Mac driver for the BJ-10e.

With this setup the Canon runs almost seamlessly with the Mac; the only new step required is a few seconds to initialize the ParaLink through the Chooser whenever power has been turned off and on again. (In other words the ParaLink doesn't have to be initialized every time you go to print something, only when you initially power it up).

The resulting output using outline fonts was spectacular. Both the output from the outline fonts provided with the GDT package, and from Type 1 PostScript fonts printed using *ATM*, were practically indistinguishable from the output of a laser printer. Bitmapped artwork also printed out beautifully. The ink used by Canon dries instantly (requiring no drying tray like on the HP DeskWriter), and doesn't smear. Plain paper works great. The Canon handles envelopes very well with a special envelope slot, and manually inserted sheets of paper are positioned perfectly every time with just the push of a button. There were no problems with printing and all of the applications that I tried worked fine.

All was not perfect though. The printing of bitmapped fonts was often disappointing, a problem that might have been alleviated by a smoothing option . Also, the BJ-10e was designed to print in both directions as its printhead moves across the page. With the GDT software set so that the Mac prints using outline fonts, the BJ-10e only prints in one direction, with a corresponding reduction in print speed. Printing averages about 4 minutes per page using outline fonts. This eliminates this package for consideration in a business environment or for heavy use. It is the only choice though for a lugable laser-quality printer to team with a Mac Portable, and it is a reasonable choice for a low-cost laser-quality home printer. By the way, in draft mode the printer's internal fonts are utilized, not only increasing print speed because draft printing is bi-directional, but giving laser-quality output. If only formatting could be preserved in draft mode...

Just prior to the deadline for this article I received a copy of *QMS's UltraScript Software for the Macintosh* ($115 from Publisher's Toolbox, 6606 Carlsbad Drive, Madison, Wisconsin 53705, 1-800-233-3898). This package arrived too late for me to do a thorough test, but it holds great promise. Not only does it allow the BJ-10e to print using QMS's included outline fonts, but it will convert Type 1 PostScript fonts into a special format for use with *UltraScript*. Bitmapped fonts should print nicely, since *UltraScript* includes a smoothing option. It will also print PostScript graphics! All this for only about $30 more than the GDT package.

But, once again, there are tradeoffs. *UltraScript* requires at least 1.5 megabytes of RAM and 2.5 megabytes of free hard disk space. It is slow on a Plus (or a Portable),

requiring up to 20 minutes to convert Type 1 fonts. (I understand a fix for this is in the works.) It is impractical to use without also running *Multifinder*. The extra memory required by *UltraScript* may be in short supply, and is expensive to add, on a Mac Portable. But if you have the memory to spare, the combination of *UltraScript*, ParaLink, and a Canon BJ-10e, may be a great way to go. I will thoroughly test this latter combination at the first opportunity.

Hewlet-Packard DeskWriter

$639 at ComputerLand of Fremont, 3381 Walnut Ave., Fremont, CA 94538, 415/794-9311

This QuickDraw ink-jet printer is probably the best deal on a printer for the Mac. It will give you 300 dpi printing, almost indistinguishable from a non-PostScript (QuickDraw) laser printer, but it will be a little slower than a laser printer. The DeskWriter will print Type 1 PostScript outline fonts as beautifully as if done on a PostScript laser printer if used with *ATM*. (Fortunately, version 2.0 of *ATM* is not quite as annoyingly slow as past versions.) The new DeskWriters are also AppleTalk compatible. The DeskWriter prints bitmapped graphics nicely, but large solid black areas in artwork will cause the paper to get wet with ink resulting in the paper becoming wrinkled. Unless you really require extra speed or PostScript capabilities (e.g. in a business environment) this printer is all that you really need for personal use.

NEC Silentwriter2 Model 90

(not to be confused with the Model 290, which is also a Mac laser printer.): $1539 from J &R Music World, Department 9005, 59-50 Queens-Midtown Expressway, Maspeth, NY 11378-9896, 1-800-221-8180 or 1-800-551-7200 or 1-718-417-3737.

The NEC is a good example of how quickly the market can change. The day before I was going to submit this article, this printer was released and it knocked two other printers off of this list at once.

The NEC Silentwriter2 Model 90 is a true PostScript laser printer that *includes* 2 megabytes of RAM, 35 resident fonts (equaling about 11 font families), an AppleTalk interface, a 250 sheet feeder tray and envelope tray. It's rated at 6 pages per minute and has a one year warranty. I expect this printer to take a huge portion of the Macintosh laser printer market because of its breakthrough price. One thing I especially like about the NEC is that it prints solid black areas beautifully and is very easy to use. This printer would be perfect for a small business. Compare it to my previous recommendation, the TI MicroLaser, which is a very similar machine. The MicroLaser only comes with 1.5 megabytes of RAM (not enough, I'm told, to print some legal size pages), and the TI requires you pay extra for an AppleTalk interface, a larger sheet feeder, and an envelope tray; which is standard equipment with the NEC. The best price that I have been able to find for the TI is over $300 more than the best price I found for the NEC.

I hope this helps you find the right printer for you. I will continue to search for better deals and packages. I would appreciate hearing from anyone who has heard of a really good deal on a printer, or who has put together an unusual printer package that works well. Good Luck!

(I have not made recommendations for non-PostScript (i.e. QuickDraw) laser printers. Non-PostScript laser printers are more expensive than the DeskWriter (around $500 more), and are not much faster than the DeskWriter while offering roughly the same print quality. QuickDraw laser printers do a better job of printing graphics than the DeskWriter, but if you want to buy a printer for graphics then you should probably buy a PostScript printer. I haven't found non-PostScript printers that are Mac-compatible to be very good values. Once again, this may change. The prices for laser printers are falling very rapidly).

The other printers were: The Hewlet-Packard LaserJet IIP, $924, teamed with the Pacific Data Products, Pacific MacPage P.E. cartridge (model number CE290), $395, and a 2 meg. memory upgrade (required) for $199. Total Package Price: $1518, from ComputerLand of Fremont. This package is a kludge that works very well. It uses a PostScript clone. But the NEC is so close in price and offers so many more features, there is no longer any reason to put together this package. And the Texas Instruments MicroLaser 35PS:, $1849.95, also from J &R Music World.

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Word Wrangling

Vocabulary Control in Indexing

by John Chapot

When you first start assembling a database, you may have a few dozen records indexed with five or ten keywords.

Time passes, the database grows, then one day you notice that you have a home-grown information retrieval system with thousands of records and scores of keywords. Quite likely, the keywords have become a jumble, hence portions of the database are inaccessible.

If you're lucky, the software can provide a list of all the indexing terms. An examination of the keywords may reveal one or more problems. Some keywords duplicate others in meaning; some overlap; some seem to be completely encompassed by other more general terms; some concepts relevant to your data are missing altogether; inconsistencies in spelling and case appear. How can you coherently organize the keywords to provide a means of accessing the database?

The roots of the problem are at least as old as libraries, possibly as old as language itself. Your task is to organize language in order to provide the means of getting the information you need. Suddenly you notice that you have become an amateur librarian.

Since ancient times people have studied questions about language, knowledge, and information. In the third century B.C. a Greek poet named Callimachus made a list as a guide to the thousands of papyrus rolls in the Alexandrian library. During the same period, business records were accompanied by abstracts of their contents. Early-century versions of the Bible had chapter-heads or summaries which served as a kind of index to their contents. Most encyclopedia-like works were arranged by classification until alphabetization became widespread in the Middle Ages. By the invention of printing, annotated manuscripts, library catalogs, and bibliographies were in common use in the universities of Europe.[1]

Subject indexes, although rather haphazard, are found more frequently beginning with the Age of Enlightenment. The Industrial Revolution made possible an explosion in the publication of periodicals. In the late nineteenth century, with the development of taxonomy, subject indexing became more widespread and systematic. In 1901, the Readers Guide to Periodical Literature appeared, notable for the emphasis it placed upon subject access and good cross-reference. During and after World War II came the *information explosion*. Techniques were developed for indexing more quickly, consistently, and thoroughly. Machines were used in index card system. In the 1950s, Information Retrieval emerged a separate discipline, along with quantitative methods for evaluation of indexing.[1]

With the development of computers came a second avenue of approach to the problem of accessing information. It became possible to digest entire documents and extract indexing words. Many international organizations developed ways of using the computer to do the indexing. These projects had names such as KWIC, KWOC, Uniterm, PRECIS, etc.[2] Each was applied in the real world and the results were scientifically evaluated. The twin concepts of recall and relevance were established as standards against which information retrieval systems were judged.

So the last half-century has had on the one hand an explosion of serious manual indexing of documents by professional indexers, using controlled vocabularies (thesauri) specially developed by the indexers themselves, while on the other hand the development of machine-based solutions, deriving their indexing terms from the author's text. Each approach has its advantages and short-

comings, its champions and detractors. There have been numerous quantitative comparisons of the two approaches: surprisingly, neither has been found better than the other in producing effective information retrieval. Notice that both approaches have one thing in common: they create a small subset of indexing terms which are used to represent the larger document.

A more recent development has been doing away with indexing vocabularies altogether and conducting wholesale searches of the entire text of documents. Of course, this approach only works with machine-readable documents; they are becoming more and more available. The rationale for this approach is that authors are communicating directly to the reader in a commonly understood language. Anything else is a contrived, artificial language that may constitute a barrier between author and reader.[3] Most search functions and stand-alone text-search utilities in the Macintosh world take this approach.

When one compares *free-text* searching versus controlled-term indexing, an intellectual dilemma emerges. On the one hand, *free-text* searching has the desirable characteristic of bringing the files in direct contact with the user. This carries the need to develop ways of letting the user resort to unrestricted natural language as closely as possible. On the other hand, the problems of such a system are real. Searching a natural-language system generally requires more time and effort and necessitates a great deal more pondering in order to retrieve all the relevant documents simply because the searcher must try all possible terms a writer may have used.[4]

The recent appearance of a *reverse dictionary*[5] heralds an interesting development: the user types in a definition and the software returns a word. It is conceivable that this could lead to an invisible *super-thesaurus* which could offer an array of synonyms to the free-text searcher. Although such a system has yet to be implemented, it holds promise. But such a system will not escape the inherent problems of thesauri. For one, who will decide upon the content of the *super-thesaurus* ? A search of "Inside Information" on the word "teenager" yielded a few typical synonyms, plus "American Bandstand," an entry which exemplifies the cultural bias of the editor. Whenever a thesaurus is involved, decisions are inevitably subjective. Additionally, the depth required by a narrowly limited field runs counter to the breadth that a general-usage thesaurus needs. Lastly, since the English language is continually growing and changing, regular maintenance is essential.

So a natural-language system eventually discovers the need for some sort of controlled vocabulary.

There is a dearth of subject indexes in the Macintosh world. Have you ever searched for a file on a major online service? Authors are invited to provide keywords to their files without guidance. When they do so, the results are catch-as-catch-can. No master list of subjects exists, let alone a coherent one.[6] The result of this is that the searcher is utterly alone. Searching an online library catalog, such as Melvyl, is similarly daunting. In bibliography-footnote-and-citation management systems[7], one can usually summon a user-entered list of keywords, but these authority lists are given minimal capability: cross-references and hierarchical structure are nonexistent. Databases have similar limitations.

So at the present moment, users of personal computers are a little like the rich man who loved books and bought thousands, but then couldn't find any one book in particular. It seems to me that as more people begin to wrestle with ever-larger amounts of information (since the so-called information explosion is expanding geometrically), a rediscovery of the art of subject indexing will occur, born of necessity. What's needed is a critical mass of unmet need, a demystification of the art of thesaurus-making, a willingness to undertake the intellectual workload, and a new generation of clerical tools.

I suspect that the mass of unmet need is critical now. Subject indexing is indeed an art, but not beyond the reach of non-professionals. There are excellent books available, and courses in Library Science. The wish to let the computer do all the work may yield to the desire for better results. There is no escaping the fact that the intellectual work is difficult, and never finished. However, the benefits of such an undertaking make it worth the investment: the user attains a deeper and more thorough understanding of the field.

When I reached these conclusions, confronted by an ever-growing collection of technical magazines, I decided to do it myself. Not wanting to reinvent the wheel, I expected that something obvious like the Dewey Decimal System could be adapted to suit my needs. Well, I found that everybody hates Dewey and the Library of Congress system is hopelessly complicated. I rather liked the name of the peek-a-boo-cards system, but it was obsolete. A British invention called Thesaurofacet seemed like the most promising place to start.[8]

Beginning an adaptation on the Mac, conventional databases proved to be too rigid. Helen Townley, in her delightful book, strongly recommended 3 x 5 cards and colored pens[9]. Then HyperCard came out, and Boswell's Companion was begun. This system consists of two user-developed index stacks, one a thesaurus of terms (subject headings) and the other a list of proper names and literary titles, and a database stack for keeping bibliographic information including a summary (abstract) of each article. In the indexes, the user cross-references non-preferred terms to the preferred ones with "use" or "see" pointers. Hierarchical structure is evident in "see also," "broader term," and "narrower term" pointers. HyperTalk provides fast navigation. Used separately under a program such as HyperDA, the indexes can be used to clarify the keywords in any application.

Boswell's Companion is the first Macintosh tool specifically aimed at the development and maintenance of subject-indexing thesauri. If all goes well, mini-thesauri will begin to appear in diverse disciplines, themselves serving as starter-batches for other personal indexes.

One final thing to consider is how a rule-imposing structure can possibly have any place in the unrestricted, non-linear world of hypertext. The answer may be found in a recent BMUG newsletter article.[10] David Buehler identifies "...the most basic and profound problem of all hypermediasts, i.e. 'How do I get out of here?...Hypermedia is useless without a caring human face (or interface) capable of navigating the Great Wave of Words." To extend his metaphor (hopefully without sinking it), a controlled-indexing vocabulary should be a launching point and port of refuge, a navigational aid, and a means of keeping track of decisions about which words are land and which are water. Since its *charts* can be individually tailored, the idea of free association so central to hypertext will be supported.

SIDEBAR: Boswell's Companion 2.0, Indexing and Abstracting in HyperCard™ (a commercial product) should be available by February 1991.

John Chapot is a stagehand employed variously by Industrial Light & Magic, San Francisco's ACT, and others.

References:

[1] Cleveland, Donald and Anna. "Introduction to Indexing and Abstracting." Littleton, CO: Libraries Unlimited, 1980. Used by permission.

[2] "FreeText" by Dr. Mark Zimmermann is an excellent program for the Macintosh.

[3] Cleveland, Donald and Anna. op. cit. :47

[4] Cleveland, Donald and Anna. op. cit. :48

[5] "Inside Information" from Microlytics

[6] my experience is with GENIE and America Online.

[7] "End Note," "Pro-Cite," "HyperKRS," "Bookends," "BiblioStack"

[8] Foskett, Anthony C. "The Subject Approach to Information." 4th ed. Hamden, Conn: Linnet Books, 1982

[9] Townley, Helen and Gee, Ralph. "Thesaurus Making - Grow Your Own Word Stock" London, Andre Deutsch, 1980

[10] Buehler, David. "Hypermedia in Biblical Studies." BMUG Newsletter (S/F 1990): 179

A Menage of Manuals & Magazines

or How To Join Text to Circle so that All the Text Reads Clockwise Using FreeHand 2.0

by Manny Roizen

Manual Makers all seem to be members of Mensa, or wearers of Phi Beta Kappa keys, or possessors of IQs with numerals exceeding those of sesquicentennials. And

all those high-powered, high-foreheaded magazine columnists seem to be refugees from the ubiquitous ranks of the Manual Makers.

Why do these people assume that "the rest of us" understand, perceive, assimilate what they are saying; that our computer vocabularies equal those of our everyday trials and tribulations ? Do they think that all of us are the same kind of mavens that they are?

Prologue to the Bottom Line

Using FreeHand 2.0, no matter how hard I tried to make all the text around a circle read from left to right, I always failed. The text at the bottom of the circle was either upside-down or backward. Manuals and magazine feuilletons flatteringly considered me a maven, a power user...in fact, they clearly considered me so smart that I wondered why they bothered writing manuals and magazine tip-sheets for me.

So I labored long, tried everything, repeatedly had frustrating failures and almost-got-its, and finally, serendipity! I discovered how to correctly text the circle so you can read it without crooking your neck and head.

The Bottom Line

To join text to a circle so that both the top and bottom halves of the circle carry text that reads from left to right:

1. Select the Oval Tool from the FreeHand Toolbox. Holding down the Shift key, use the Oval Tool to draw a circle.
2. Establish two separate paths: the top half of the circle and the bottom half of the circle. To do this, select the Knife Tool from the Toolbox; then double-click at the 3 o'clock and 9 o'clock points on the circle. Separate the two halves by selecting the Arrow Pointer (the Arrow Pointer is accessible from the Toolbox or by pressing and holding down the Command key) and dragging the bottom half of the circle downward, away from the top half.
3. Click **Ungroup** from the Element menu.
4. Now create two separate text blocks, one to rest on the top half of the circle's path, the other under the bottom half. Both will finally read from left to right. To create the text blocks, select the Text Tool from the Toolbox (the A). With the Text Tool, click anyplace near the the top half of the circle, and a Text Dialog Box will appear. Select the font, the the size, then the style. Then select **Align Center** from the Alignment sub-menu under the Type menu. Type in the text for the top half of the circle and click **OK**. Repeat the same procedure for the text block for the bottom half of the circle.

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5. Now, using the arrow pointer, deselect everything on your Desktop. Then select both the top half of the circle and the Text Block you want to rest on the top half — hold down the Shift key while selecting both circle and type with the arrow pointer. From the Element menu, click on **Element Info**. When the Text Along A Path Dialog Box appears, click on **Show Path**, then click OK.
6. Pull down the Element menu. From the Special sub-menu click on **Join Elements** — the top text block will curve and rest on the center of the top half of the circle.
7. Then deselect what you've just done, and follow the same procedure (steps 5 and 6) for the bottom half of the circle with its text block. However, the Text Block on the bottom half will not read from left to right — that's where it gets tricky.
8. Now to position the bottom text block so that it reads correctly from left to right. First, deselect everything on your Desktop, Then select the bottom half joined element (path and text block). Then, holding down the Option Key, select the Reflection Tool (seventh from the top in the right hand column of the Toolbox) and double-click it on the bottom half of the circle Path. The Reflection Tool Dialog Box will then appear. Select **Vertical** (the vertical axis) and then press **OK**. Serendipity! The text reads from left to right!
9. Now to make the bottom text block flow along the outside of the bottom half-circle path. Select the bottom text block. From the Element menu, select **Element Info**. There, from the Text Along A Path Dialog Box choose **Ascent**, and press Return.
10. Now select the bottom half of the circle with its correct text block. Using the arrow pointer, join the bottom half to the top — and you've done it !

Oh, be sure you've selected **Save As** from the File menu, or all your efforts may end up in the Trash Can.

Congratulations are now in order!

PopChar:

When you need a little character building

by Greg Webb
University of Technology, Sydney

The Macintosh has made a major impact on the presentation of ordinary writers' work. Writers of all backgrounds think it's the best thing since the invention of the

printing press. Linguists can type their modified vowels with umlauts or dieresses (ä, ë, ï, ö, ü), circumflexes (â, ê, î, ô, û), acutes (á, é, í, ó, ú), graves (à, è, ì, ò, ù), tildes (ã, ñ, õ), and put the cedilla mark on the letter 'c' (ç). Mathematicians can use Greek letters (Αα, Ββ, Γγ, Δδ, Εε, Ζζ, Ηη, Θθ, Ιι, Κκ, Λλ, Μμ, Νν, Ξξ, Οο, Ππ, Ρρ, Σσ, Ττ, Υυ, Φφ, Χχ, Ψψ, Ωω), mathematical constants (π), mathematical symbols (√, ∏, Σ, Δ, ∫, >, », <, «, =, ≠, ¬, ±, ÷), and infinity (∞). Desktop publishers can use n-dash (–) and m-dash (—) instead of hyphens(-), ligatures (æ, œ, fi, fl), smart quotes (', ', ", "), and typesetter's footnote marks (*, †, ‡, §, ¶). And we can all use the copyright symbol (©), the trademark symbol (™) and the registered trademark symbol (®) to show we know how to respect other people's property.

But how do you find these characters when you don't use them all the time. One way is to use the Apple Key Caps desk accessory (Figure 1a). This labels each key with the character that it will produce when pressed.

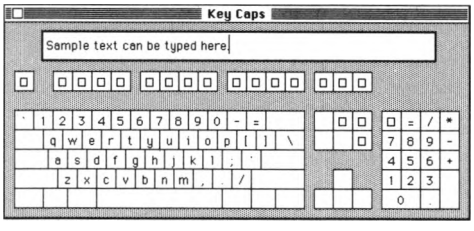

Figure 1a: The Apple Key Caps desk accessory showing the keys in Geneva font

The labels change when the modifier keys (Shift, Option, Shift-Option and Control) are held down on the actual keyboard. Figure 1b shows the Key Caps display when the Option key is held down. Notice that depression of the Option key is signalled by the Option key on the display being blacked-out.

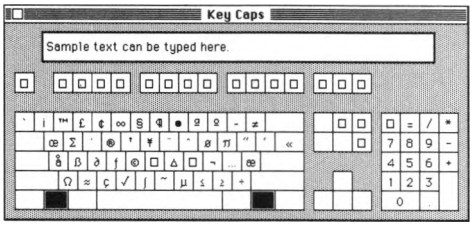

Figure 1b: The Apple Key Caps desk accessory showing the keys in Geneva font when the Option modifier key is held down

However, it can still be cumbersome to find an obscure character when you have at least four levels of keyboard displays to search through.

Enter PopChar. PopChar is a utility to display a map of all the characters in a font at the same time, and what's more, will paste any character from the map at the insertion point of the current application. Figure 2 shows PopChar's display.

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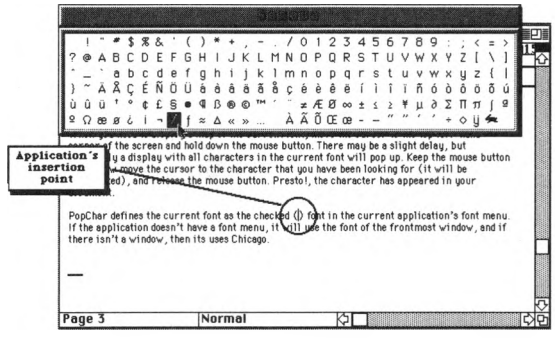


Figure 2: PopChar's display of the Geneva font

PopChar is a special type of Macintosh program called an CDEV which gets installed into the Macintosh operating system when the Macintosh first starts up. To install PopChar, simply put a copy of the PopChar file in the System Folder and reboot the computer.

When you need to display a map of the current font, move the cursor to the top left-hand corner of the screen and hold down the mouse button. There may be a slight delay, but eventually a display with all characters in the current font will pop up. Keep the mouse button down. Now move the cursor to the character that you have been looking for (it will be highlighted), and release the mouse button. Presto!, the character has appeared in your document at the current insertion point. (Figure 2 shows how the check mark √ was inserted into the next paragraph of this article.)

PopChar defines the current font as the checked (√) font in the current application's font menu. If the application doesn't have a font menu, it will use the font of the frontmost window, and if there isn't a window, then it uses Chicago.

PopChar is a real benefit when using accented vowels, mathematical symbols, and non-roman alphabets such as Greek (see Figure 3).

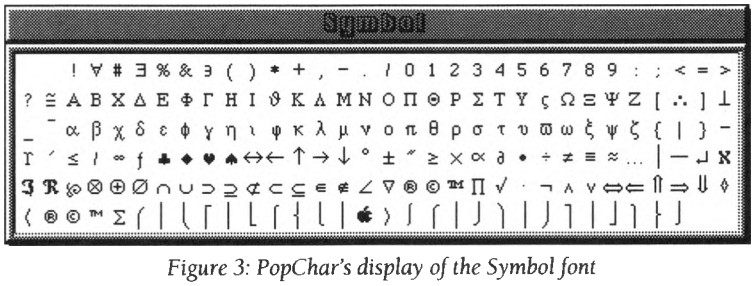


Figure 3: PopChar's display of the Symbol font

In addition, PopChar is an *essential* tool for desktop publishers working with picture fonts such as Cairo, Mobile and Zapf Dingbats (Figure 4).

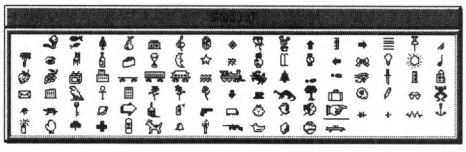


Figure 4: PopChar's display of the Cairo font

PopChar has modest memory requirements. Once installed it requires only 2,790 bytes (less than 3 Kbytes) of memory. PopChar is incompatible with those utilities that also use the top left-hand corner of the screen as a hot-spot. I know of only one such utility: AutoMac III, the macro facility that comes with Microsoft Word.

PopChar is available from your local public domain library or bulletin board. If you are on AARNet, PopChar can be retrieved via anonymous FTP from ditmela.oz.au, in directory info-mac/cdev.

And how much does this little gem cost? Absolutely nothing. The author, Günther Blaschek, kindly permits everyone to use it free of charge, but retains his copyright on the program. Günther's only request is that if you like PopChar you send him a postcard with 'some nice words on it'. His address is in the documentation.

By the way, don't forget the umlaut over the 'u' in his name, you've got no excuse now.

Is Ready,Set,Go Enough for You?

by David J. Ourisman

Common wisdom holds that PageMaker 4.0 is the Desktop Publishing (DTP) package of choice for Macintosh users. Even BMUG lists PageMaker at the top of

its list of recommended Page Layout programs. However, many Mac users who need to do page layout may find *Ready,Set,Go* ($165, MacConnection) not only more economical than *PageMaker* ($499) but also equivalent in power while being much more user-friendly.

I have used *Ready,Set,Go* (and subsequently upgraded to *Design Studio*—more about that later) in the production of a monthly Church newsletter, which recently won first Place in a national competition for church newsletters. A DTP program is also useful for posters, certificates, and other one-page pieces.

As the second Macintosh DTP program introduced (*MacPublisher* was the first), *Ready,Set,Go* (*RSG*)introduced *grids* for design purposes. With *RSG* you can use either guides (as with *PageMaker*) or grids. The default setting is for guides (Letraset is competing with Aldus), but I find it easier using grids. One advantage of grids for one not trained in graphic design is that one begins by looking at the page as a whole and designating geometric areas of the page for text and pictures.

One begins to work on a page by designing the grid. Choose *Grids* from the *Special* Menu. You will get a two-column by four-row grid as a default. If you want to change the grid pattern choose *Design Grids* from the **Special** Menu (command-9). You can either choose one of eight preset grid patterns by using a radio box, or you can custom design a grid pattern by choosing the **Grid Setup** radio box from the same dialog box.

I find a six column grid to be a very flexible format for newsletters. As illustrated below, it is easy to have one, two, or three columns on a page (or any combination) with a six column grid.

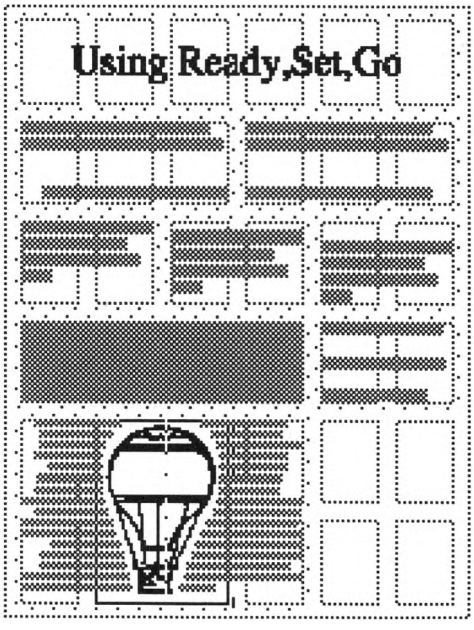
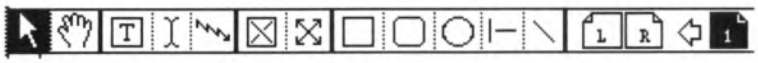


Figure 1

The text boxes are then set up using the text box tool from the tool box pictured below (the text box tool, is the box with the letter "T").

Just click-and-drag within a range of boxes, and the text box will automatically snap-to the grid outline. Snap-to can also be turned off. The dimensions of a text box (or picture box) can be defined via a dialog box to 1/10,000 of an inch; to call up that dialog box, just double-click with the arrow tool on the object whose specifications you wish to define.



A quick study of the tool bar above will reveal some of the capabilities of the program. The **Arrow** is a pointer to select an object (text box, picture box, line, rectangle, circle); by shift-clicking, a number of objects can be selected at once. The **Hand** tool can be used to move around the screen, or the scroll bars can be used. The **Text** tool is used to define text boxes. By clicking the *cursor* in a text box, one can then begin entering text, either by the keyboard or by loading a word processing file which has been saved to disk. The **Lightning** tool is used for linking text boxes so that text will flow from one column or page to another. The **Picture** tool (the box with the *X*) is used to define a picture box; the *X* with four arrows is used to move the imported picture around within the picture box.

The next five tools are used, respectively, to create rectangles, rounded rectangles, ovals, vertical and horizontal line, and diagonal lines. By using the shift key as one draws the shape, a square or circle is created, just like *MacPaint*. Finally, one has the ability to create Master Pages (left and right). You can go directly to the page you wish to work on by clicking on the page icon with the number corresponding to that page.

There are two ways of entering text into a DTP program.

a) Text can be created in a word processor, then loaded it into the article; and/or
b) The DTP program can be used as a word processor, directly entering text into your document.

RSG has always had a more capable word processor than *PageMaker*, although no DTP program can compare with a standard Mac word processor. I have some wish list items for *RSG*'s word processing capabilities.

First, *RSG* ought to offer smart quotes, as does, for instance, Microsoft *Word*. A shareware program such as *Quote Init* can provide the same capability.

Second, the matter of *tabs* has always been a difficult matter with *RSG*. Although the program has a quite powerful tab feature that can actually do more than standard word processor tabs, to describe its implementation as non-intuitive would be an understatement. Despite having used *RSG* for years, I still have to use the manual to figure out how to use tabs. Far better would be an on-screen ruler to indicate margins, indents, tabs, line spacing, and justification.

And, third, I have been spoiled over the years by Microsoft *Word's* paragraphed-based formatting. In *Word*, from anywhere within a paragraph the formatting of that single paragraph can be changed either from the keyboard or from the ruler. But with *RSG*, the entire paragraph must be selected before it can be reformatted.

One final question... Does *Design Studio* offer any substantial advantages over *RSG* in return for the considerably higher price? I upgraded because of a very generous upgrade offer and do appreciate the ability, for instance, to rotate text or pictures (although being able to do so in increments of one-tenth of a degree is a bit of over-kill). But in general *Design Studio* is not worth the extra money. It is a real memory hog and I suffered from repeated system crashes in *Multi Finder* until I increased its allocation to 2.5 megs.

The bottom line: I believe that *Ready,Set,Go* is enough for most users. Perhaps the professional graphic designer who needs some specialized capabilities or who creates long documents will have a real use for *PageMaker, Quark XPress, Design Studio, or Frame Maker*. But if you need a DTP program to produce one-page flyers, brochures, and newsletters, *RSG* is a fast, easy, capable, and inexpensive option to consider.

Nisus

A Word Processor For Text Analysis

by Mark Riley

Reviews of Nisus, from Paragon Concepts, have appeared in MacUser and MacWorld. The judgment of these reviews has been that Nisus is a high-powered word

processor in the same league as MS Word. I agree with this, but I want to describe a feature of Nisus that is unique and of particular value to anyone engaged in textual analysis, that is, the studying of word choice, sound patterns, metrics, or anything of that nature.

Ninety percent of the program is conventional word processor: it offers headers, footers, end- or footnotes in several styles, a spelling checker (80,000 words), multiple windows, and exact control over fonts and paragraph formatting. It also has a combination thesaurus/dictionary (47,000 words; WordFinder, which comes with MS Word, is a better thesaurus), auto-hyphenation (which can be turned off), WYSIWYG page view (which can also be turned off), print preview, comprehensive search/replace by text, font, or style, an elaborate macro facility, on-line help (very slow, and not helpful), and a MacDraw type graphics function. Nisus does not offer style sheets, although it offers a rough substitute, à la MacWrite: I can copy and paste rulers to duplicate paragraph formats. For straight word processing, I prefer MS Word, but there really is not a big difference; I could live with either.

It is in Find/Replace that Nisus shines. The dialog box for this function is revealing: it fills half the screen with its own menu bar and drop down buttons (see fig. 1) I can search "Literal" i.e. for a specific word or phrase, as in any word processor. But I can also search using GREP, and this is the prize. GREP stands for Global Regular Expression Parser, where "regular expression" is any combination of text and a set of special symbols, called metacharacters, which modify the text. For example, [a-M] represents all the characters in the ASCII set from lower case a to upper case M; [^a-M] represents all the characters which are not in that set. As an example to explain this: with the proper "regular expression", I can search for any word + any one or two digit number + a comma + a four digit number, and this search will find all the dates in my document. Understand now, I am not searching for a specific date (June 3, 1990), but for any group of numbers in that configuration: a GREP search will find June, 3, 1990, May 23, 1888, Dec. 25, 1234, and so on. (I'd have to modify the GREP expression if I had dates earlier than 1000, since it is only looking for four digit numbers.)

Now GREP is a UNIX utility, and such UNIX creatures bring fear to anyone but the most hardened techie. Learning to write "regular expressions" is not easy, and the brief description in the Nisus manual doesn't help. (There is very little documentation anywhere for GREP—even the Unix manuals are very sketchy.) Fortunately Nisus offers Easy-GREP as an option in the Find/Replace dialog box. With Easy-GREP I can write my date-finding expression by select-

ing items from the menu (see fig. 2 for the expression), then if necessary, I select GREP in the pull-down menu and Nisus translates Easy-GREP into GREP (the GREP expression is in fig. 1).

What does this have to do with literary study? I am a classicist, a student of Latin poetry, among other things. Two of the best known Latin poets were Vergil and Ovid (both contemporary with the Emperor Augustus; he liked Vergil, but exiled Ovid). They both wrote in the same meter (dactylic hexameter) but each with a different "feel", Vergil somewhat ponderous, Ovid more bouncy. I want to study specific differences in their choice of words. I have a text of Vergil's *Aeneid* and of Ovid's *Metamorphoses* on disk, and I can put GREP on the job.

Here's what I did: I wrote a GREP regular expression which looks for a three letter word at the end of a line of poetry. This is [:a:a:a\s+\r], or three alphabetic characters + one or more spaces + a return character. To this I added an expression which retrieves the last two letters of the preceding word, and wound up with [:a:a\s:a:a:a\s+\r]. I did this because in many cases the three letter word will be *est*, the Latin for "is" and it will contract with the preceding word if that word ends in a vowel (much like "not" contracting with "do" to make "don't"). In such a case *est* should hardly be counted as a separate word. With the longer expression I can see what the preceding word ends with. Nisus has an excellent macro facility, so I wrote a short macro which calls up the Find/Replace box with the GREP expression in it, searches through the text of Vergil and Ovid, and writes the result of the find to a separate file. I don't even have to have the texts open on the desktop—a good thing, because they would be over one meg., and Nisus can't handle documents that big. I establish a "search file", simply listing the documents I want searched, and Nisus runs through them.

Without more detail, I found that Ovid ends a line of verse with a three letter word 10 times as often as does Vergil, and that slightly less than half of these occurrences are *est*. This should be one reason why Vergil's verse seems more ponderous—but I'll leave that for the literary critics.

In no other word processor could I have done this study. Indeed, entire languages (SNOBOL, IBYX) have been written to do this sort of thing. In addition, one of the options in this amazing Find/Replace box is "Index", using which I can search for Vergil, Ovid, and Lucan and index them all under "Roman Poets" as well as under their own names. This is a very flexible function.

In my opinion, anyone who needs or wants to do the sort of study described here should investigate Nisus. One problem: the manual is not adequate for teaching GREP and the macro function. Fortunately the telephone support, though not toll-free, is excellent. I found the techs to be easy to reach and well-informed. The potential user will simply have to go as far as he can in the manual, practice and experiment, then call tech support in LA.

Zedcor Desk Programs

by Elaine Beattie

Generally speaking these desk accessory programs are good enough that they can be compared to the big *programs. The few problems I've had do not interfere with*

how excited I am about this system software's capabilities.

One problem is that it does not use the LJ Series II font/printer in the write program. I've called the technical staff at Zedcor and was truly impressed. He called the people at Insight who wrote MacPrint software to find out what problems Zedcor needs to correct. Zedcor sent Insight a program so they could work with it. Hear this: Zedcor called me back *several* times to let me know what progress is being taken. They are proud of their program and want it to work for everyone!

Manual

The manual and tutorial manuals are organized by desk accessory and then by each menu. Easy to follow and to use since each section has a quick reference tab. Each section in the manual gives you a head start on using the Command keys as they are used in examples and listed again at the end of each section. A review on these accessories could be pages long just because they do so much. To make it simple I am just going to list some of the things I was impressed with about each accessory and occasionally make a comment.

Features included in all accessories

Preferences defaults can be set for each accessory

Keyboard shortcuts and easy to use

DeskCalc

Layout has page frame capabilities

Absolute/Relative feature

Even has row height 5-127

Color possibilities and 110 fill/line patterns

8 charts 6 borders 7 color

Protect document/cell

Hide document/cell

Functions give examples

Charting: This is where I had most of my *bombs* in testing this accessory.

DeskCom

Has 9 number phone book

Each telephone number can be configured to special communication settings.

DeskDraw

Problems: Bombed when closing window before saving ID3 and after doing a drawing, erased and closed without saving blank.

Object sizing by percent
front to back, etc.
text tool very flexible and is capable of having different sizes in a text block, underline, bold, etc
text rotate includes free rotate
Polygon smoothing and reshaping
handles deskpaint auto traced images
grouping and flipping
opaque, transparent, negative, negative+transparent, black/white invert, black/white erases
Works with color and saves palettes! Can modify color/grays and can save particular palettes (Keep in mind this is a desk Accessory!)
Page layout can be 50" x 50"
Opens documents in deskdraw, pict and pict 2 created by MacDraw II, Canvass and Superpaint
Supports color printing
Forms can be created in Deskdraw for Deskfile
Duplicate relative feature
Manual is good in describing hue, saturation and brightness
has usual: autosnap, ruler, reduce/enlarge window, group, % scale, rotate, flip align, bring front/back, text condense/expanded, reshape tool.

DeskFile

Has three views: label, form, list
Export/Import: Filemaker, Deskcalc, text, spreadsheets.
Labelview set up in Page setup
Hand moves field position
One font size default
In list view hide records/fields
In form view, page layout allows for number of forms to print per page and exact sizing.
Deletes field in list, did not delete in form
Hide field allows tab to miss that entry spot when tabbing
Allows photo or graphic to be included in form.

This is such an *simple* and *fast* program to use for labels that I've used it to set up labels for mailing, a rolodex, 3 x 5 cards, and I've made *home made by* labels with a cutsy picture!

DeskPaint

Has a browse feature that is great when you want to browse through a scrapbook or a folder with a variety of graphics and you're not sure what you are looking for!

DeskSecretary

Can set reminders to notify on a daily, weekly, month basis. It even talks if you get lonely!

DeskWrite

Font size: up to 72 point can be used
Default stationery
Smart quotes
Text wrap options
Date and hour insert in different formats

RecoverWordDoc:

When You're Lost For Words

by Greg Webb
University of Technology, Sydney

If you have the misfortune to end up with a corrupted Microsoft Word document which is very valuable to you (it only happens towards the end of a protracted project

such as a thesis and just before the deadline), and you just don't happen to have a backup (yeah, yeah, you were about to do it when the system crashed), and none of the utilities you've tried will recover the file, then RecoverWordDoc may have a compromise answer for you.

RecoverWordDoc will open a Word file and extract all the ASCII data from it. The recovered file will need to be reformatted but what the heck, at least most of the data is there and that's very important if you are a slow, two-fingered typist.

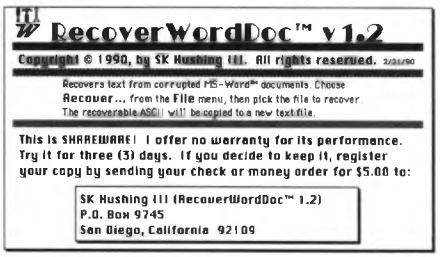

RecoverWordDoc™ v1.2
Copyright © 1990, by SK Hushing III. All rights reserved.
Recovers text from corrupted MS-Word™ documents. Choose
Recover... from the File menu, then pick the file to recover.
The recoverable ASCII will be copied to a new text file.
This is SHAREWARE! I offer no warranty for its performance.
Try it for three (3) days. If you decide to keep it, register
your copy by sending your check or money order for $5.00 to:
SK Hushing III (RecoverWordDoc™ 1.2)
P.O. Box 9745
San Diego, California 92109

Figure 1: RecoverWordDoc opening screen

To run RecoverWordDoc, double click on the application icon, and select Recover... from the File menu. Locate the file from which text is to be recovered, and click on the Open button. RecoverWordDoc displays a horizontal progress thermometer which graphically shows how much of the file has been processed and how much more there is to go.

RecoverWordDoc writes the retrieved ASCII text to a new file which will have the same name as the original but with '.RCVR' tacked on the end. The original file is left intact. The new file is text-only and can be opened by Microsoft Word or any other word processor that can open text files.

The retrieved data may have 'funny' characters intermixed with your text (Figure 2). Don't worry, these are the Word formatting instructions that are of no further use to you. Simply delete them and reformat the text.

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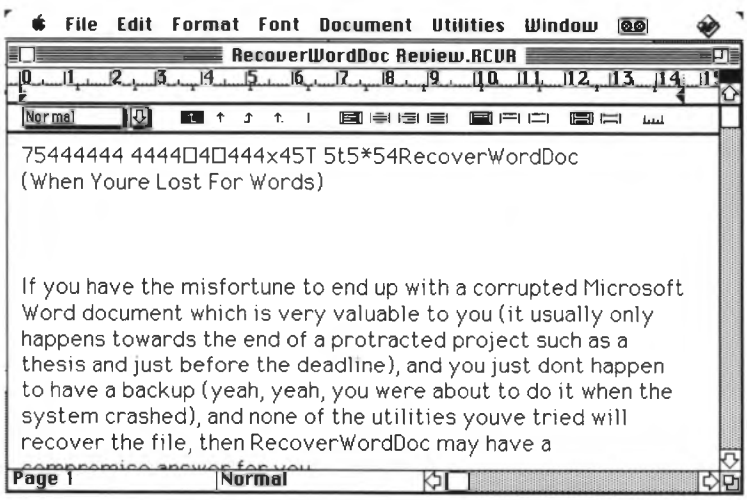
File Edit Format Font Document Utilities Window
RecoverWordDoc Review.RCVR
Normal
75444444 4444□4□444x45T 5t5*54RecoverWordDoc
(When Youre Lost For Words)
If you have the misfortune to end up with a corrupted Microsoft Word document which is very valuable to you (it usually only happens towards the end of a protracted project such as a thesis and just before the deadline), and you just dont happen to have a backup (yeah, yeah, you were about to do it when the system crashed), and none of the utilities youve tried will recover the file, then RecoverWordDoc may have a
Page 1
Normal

Figure 2: 'Funny' Characters in Recovered Word Document

RecoverWordDoc was written by S. Hushing and is distributed under the shareware system. Try it, and if you like it or it's been of use to you send the author $US5.00 (it's a pity these guys don't accept credit cards). In any case, feel free to make copies to distribute amongst your friends.

Now!, about a backup strategy ...

Are Scanning and OCR Prime-Time Players?

a MelMac Article

by Mel Hoffman

This study concerns the technology of computer-aided document scanning and some uses of optical character recognition. It focuses on capturing images for use in future documents and publications, studying the specific processes leading to electronic archiving of selected document candidates, with a concentration on the further use of that material and the ability to edit and manipulate the images. The approach is a monitoring activity of an operational system, with a practical limitation in scope to hardware and software products which are readily available. Breakpoints and monitoring positions were found external to each major element in the system. Cracking the cases of the computers was not part of this study. There were sufficient external observables to preclude using techniques with higher risk to hardware. The skill-set used in performing the task elements within this study are my own. I readily acknowledge that my skill-set did improve during the course of this study. However, this education and honing of skills is part of the process, and therefore, the outcome is sufficiently unbiased.

Assertions and Allegations

I suggest that the science of graphical (image or object) scanning is different from the art of textual recovery or Optical Character Recognition (OCR). Furthermore, the distinctions which support the effective use of each are not well understood by or advertised to the typical user. I assert that OCR should not be treated as a panacea for quick storage and recovery of textual information. The merits of applying computer scan technology are also not always as obvious as they might appear. A probe into the nuances of those processes and exploration of the potential benefits and merits of each will substantiate these allegations.

The document specimen types consist of: pure textual information; combined text/graphics; and graphical subject material. The host system is bounded by the author's limitations on time, budget, and effective use of personal resources.

The requirement of archiving and modifying documents which have been previously produced on paper or a paper-like medium is becoming more commonplace. The results of the study provide a basis for judging when to employ computer scan technology. Those elements which are worthy of consideration in the collection and storage of data will be analyzed and presented. The potential payoffs to the user will be discussed. A time/task profile will be generated to show the typical processes.

Hardware/Software Base

The study was conducted informally first with a basic 2 MB of RAM Macintosh Plus, an Apple HD20 hard drive, and an Abaton 300FB Scanner for this evaluation. The system evolved with the acquisition of Abaton's upgraded interface to the Macintosh. As I proceeded with the learning of the software, I discovered that the OmniPage OCR required a minimum of 3072K Bytes of Dynamic RAM in the computer. The Mac + could not support this. The final configuration is shown next as the Macintosh II (5 MB of RAM), Apple 80SC hard drive, and the Abaton 300FB Scanner with newer software supplanting the preceding base configuration.

The choice-maker, or person responsible for deciding on how to best use their resources, can be guided by the experience

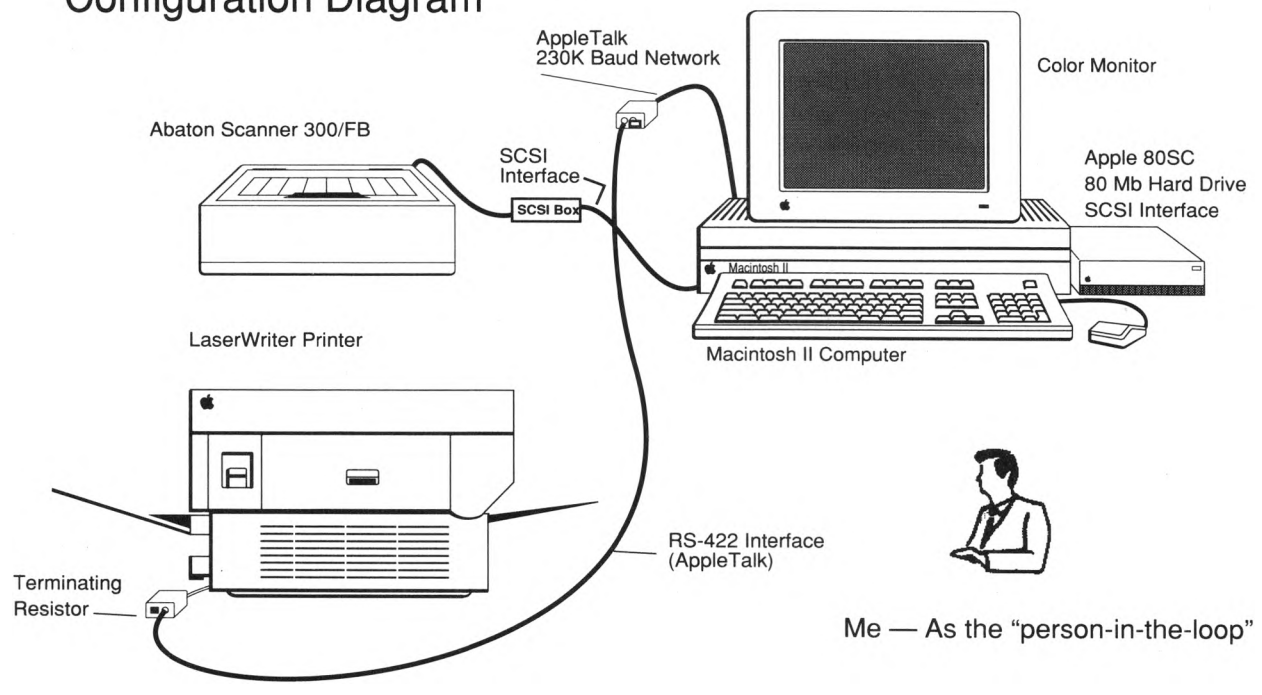

Figure 1

learned in this study. The users' environment might mandate a degree of professionalism which requires commensurate resources to perform the tasks. The issues of budgeted time, equipment capability and availability, and expertise take on a different complexion in that scenario. Major factors which merit consideration and cogitation are the following:

1. Kind of source material — Clean typewritten material is easy to archive and work with. The worst is a published journal, in a small font with mixed formatting (bolding, italics, underlining) such as a bibliography.
2. Resources available — Time, materials, and talent could be misapplied on a task which might be best performed "outside the facilities" on a commission basis.
3. Is it really necessary to use the "latest technology?"— A periodic rethinking of the task is always appropriate on any project. A simple scan & save, or photocopy (paper archive or microfiche) might be adequate for the short term needs; or a basic re–type (manual typewriter or computerized word processor) of the original page might be equivalent in time and far less frustrating. There are always options which deserve consideration.

Payoff Profile

The following time/process profile (Figure 2) illustrates my findings. The profile shows the time relationships among those prime processes which are performed in computer aided document archiving. I suggest that the reader should consider multiple pages of original material, the mix of text and graphics, and the quality of those originals; and then extrapolate the time axis for a full picture of the time window they might be facing. Matching resources with the requirements is the central issue.

Interesting Notes, Artifacts & Observations

The commented flow chart, *Elemental Processes & Their Relationships*, shows the major paths one would take, dependent upon the factors indicated. There are several requisites to be considered before embarking on any of the indicated paths. As a final commentary here, separation or clean up of text and graphics can be performed in either the Scan or OCR application as shown in Figure 3.

The quality of the source material should be quite obvious by its very appearance. The re–typing path is less expensive in cases where word processing technology is available and subject matter is wholly text. For the purposes of this study, strictly manual retyping was not considered as an option.

However, much text which might have to be edited is readable (OCR'able) as originally produced. Other document parts, such as bibliographies, contain many type styles, bolding, kerning, and the like, which are the worst to OCR. The amount of editing required is a decision factor.

In the case of documents that are wholly graphic, the path to avoid is the extreme of re–draw — graphics talent and equipment costs are high. One could easily annihilate a time budget here; some graphics could take a week or more to recreate.

The most serious costs would be incurred if a requirement existed, in addition to archiving, to reproduce and clean-up a poor quality *mixed text and graphic* document. The degree of clean-up would probably be an operator judgement-call.

OCR has fine merit in a pure text environment, or where text must be separated from graphics, or where text needs to be edited and returned to a sender (contract law for example). Its effectiveness is clearly dependant on the quality of the source material.

User fatigue was a major factor, especially in the case of manual typing, and rerunning scanning for each sheet to achieve a reasonable sample size. I attribute fatigue to those few occurrences where repetition became necessary. Most repeated times were well within my selected five(5) second boundary.

Relative Time for Each Process — A Single Page Comparison

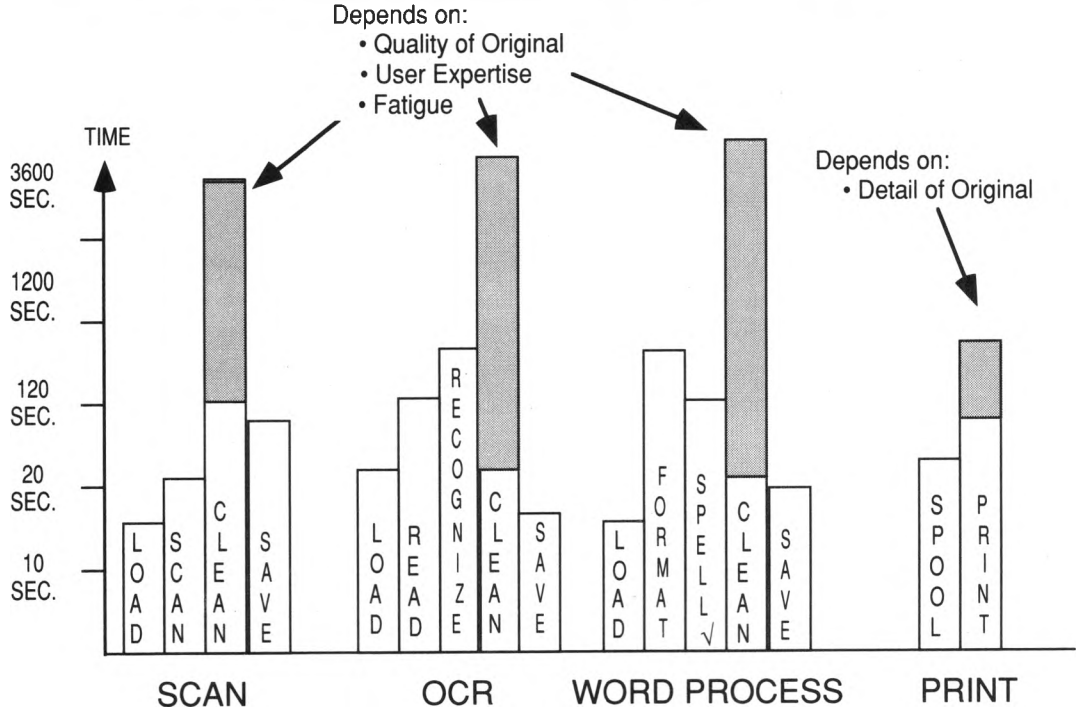

Figure 2

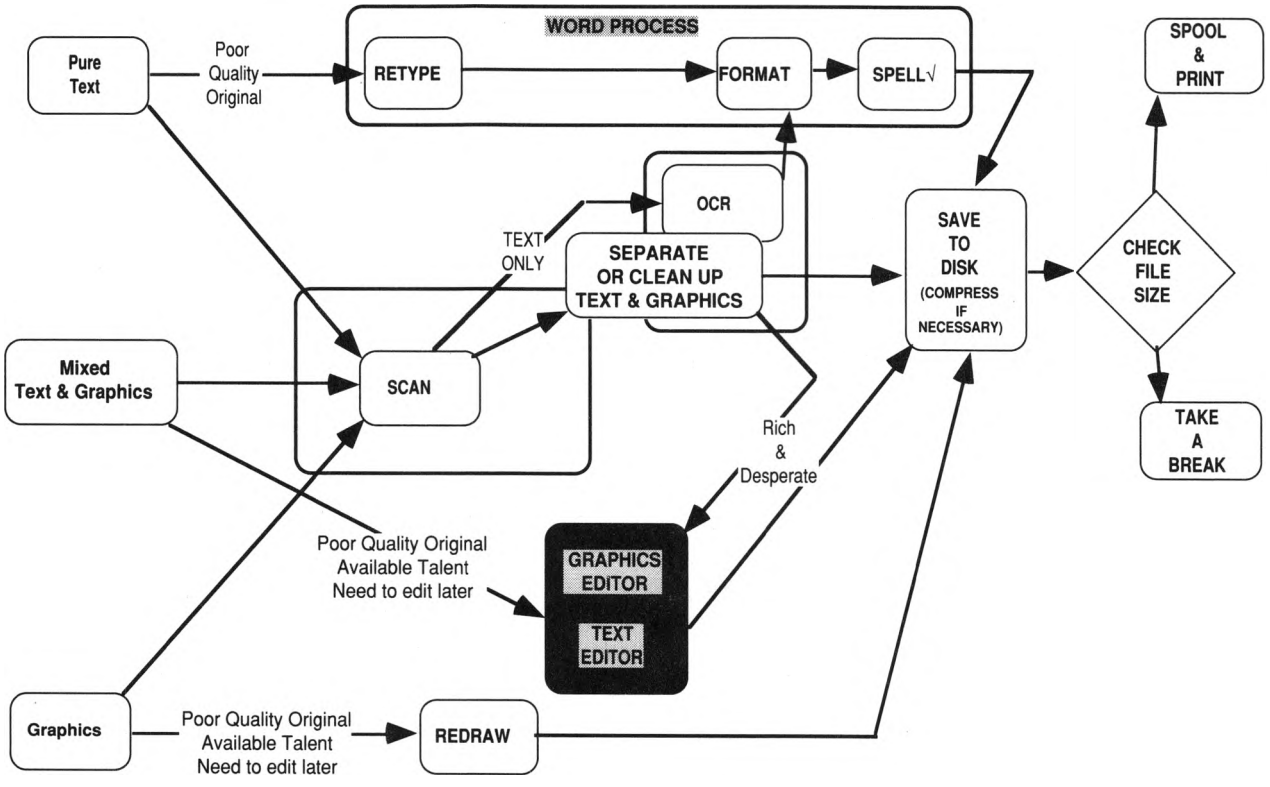

Figure 3

Spell checking each OCR'ed published page was a pain. Scanning & OCR may take longer, but there is a lesser chance of errors which change meaning, there is a greater chance for grammar errors (not spelling), and a higher probability for adding extraneous letters. Using a mallet and chisel in granite might have been more fun. Deciding where to do the clean up was an interesting exercise (in the Scan process or in OCR or in the graphics program or in word processing.)

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Hand Held OCR

and other Hot New Products

by Scott Beamer

OCR is one of the hottest areas of development in Mac software. In the following pages, I'll give you the skinny on six new products either just out or just about to come out. Among them, only Typist has been reviewed.

Beamer, S. "Caere's Typist melds hand held scanner, OCR software," MacWEEK Oct. 23, 1990. pp. 67, 68, 72

Caveat Emptor

First, though, I feel it wise to spend some time on Caveat Emptor thoughts. With so many products in the limelight these days, and so much advertising and uncritical commercial articles, it is easy to loose sight of the down side of buying and using these products.

Today's OCR software does not measure up to the public's expectations as well as, say a word processor or spreadsheet. The resultant OCR document is usually cruder, fuller of mistakes than one would expect. The user must refine their skills with the hardware and software through experience to get even acceptable results.

They must gain a critical eye so that they can look at a page and see where the problem areas are, what is likely to cause the software problems. For instance, headlines and headers are usually best left out during processing and typed in later.

One of the most common kinds of documents found in a law office are those written on pleading paper, legal sized pages with line numbers down the left side. They are separated from the body of the text by two vertical lines. Legal offices are among the most enthusiastic users of OCR technology, yet neither OmniPage or Accutext can deal with line numbers.

The cost of these products can be significant, especially if you need to buy a scanner or upgrade your hardware. Remember, most of these products need at least a Mac II with 4 megabytes of RAM. To justify the $1,500 or more involved, I figure you need to be planning on scanning at least a couple of pages for every dollar spent.

Remember, OCR does not work as automatically at you might imagine. Someone has to set things up, feed the pages through the scanner, proof read, spell check the results, and clean up the formatting. So often, if you'd just kept your head down and continued typing, you'd already be finished by now and way ahead money wise.

While OmniPage and Accutext can achieve speeds of over a page a minute, difficult pages can take several minutes each. Including clean up time, many projects average five minutes a page.

If you're not planning on processing a thousand, or possibly several thousand pages, leave the OCR stuff for next time. It will be cheaper and work better by then, too.

Accuracy is not all new users expect, either. Claims of 99.9% accuracy are based on ideal circumstances. I feel the products average closer to 99% even on top quality material. Realize that works out to something like twenty five errors per page.

Also, every time I have read a test of accuracy in the magazines. I never find any explanation of what counted as an error. Did they count zeros for ohs, ones for els? How about mistakes with bold and italics? Then there's the trouble with spacing and justification. OmniPage has a bad habit of dropping part or all of a line at the end of a paragraph from time to time. Is that counted as one error or fifty?

What's Hot!

Typist

Advantages: Great concept. The only hand held scanner I consider adequate for OCR work. The software is Caere's best OCR interface.

Disadvantages: Several hardware problems, some unit failures reported. Unacceptable manual. No on/off switch.

The essential feature of Typist is convenience. As a hand held scanner, it is designed to be next to the Mac, always at the ready. Its principle purpose is to quickly easily capture short passages of text ... magazine articles and such. While it can process full typewritten pages, it is as least twice as slow as OmniPage at such work, and less accurate as well.

The software is also ready whenever the Mac is turned on, as it is a DA. There must be a software application open as well, because Typist cannot save the text resulting from the OCR processing of a document. When it finishes work on a document, it pours the text directly into the open application.

There are some drawbacks to Typist. Its low cost is achieved, as with other hand held scanners, by eliminating the electric motor that smoothly passes the scan head over the page. The human arm is a somewhat less successful at this operation. The human always introduces some distortion. While Typist is relatively tolerant of this distortion, it always proved less accurate than OmniPage, though the two share the same recognition algorithm.

As the hand held scanner captures an image only five inches wide, it cannot do an 8 1/2 by 11 inch page in a single pass. Its maximum scan length is also limited. It cannot do a full height column in MacWEEK or the Wall Street Journal. With many documents, it will be necessary to scan the document in multiple passes. Typist's software attempts fairly successfully, to eliminate any overlap between the text of the multiple passes. Also, it captures only a single column per pass, even when the scan head passes over multiple columns. If you want to capture multiple columns per pass, as in a table, there is a software setting allowing that.

The attractive scan head has been specially designed for OCR work, and is a distinct improvement over previous hand held units. However, hardware problems are certain to cause the most complaints about Typist. It is obvious that some rather arbitrary cost cutting measures were imposed.

Installing the unit will cause the first round of grumbling. The power unit is very large with the electrical prongs sticking out of the back of the case. This means that whether the unit is plugged into a wall socket or power strip, nothing can be plugged in next to it.

The SCSI box is an economy version with only a single SCSI port and no termination. Those with more than one external SCSI device will have to spend some time and money to daisy chain Typist. Most unsatisfactory, though is the lack of an On/Off switch. Caere explains that the unit is designed to be left on perpetually. Many will not be pleased to see the red glow of the LED lights even when their Mac is turned off.

The scan head of my unit mechanically failed during the evaluation of the product I did for a commercial article. I have talked with two other expert users who have have the same problem since. Beware.

Typist's software is first rate for OCR work, lousy for graphics. The manual doesn't even explain the settings on the four position switch on the scan head. Though the unit is monochrome, the switch sets dithered half tone patterns.

The manual is much too brief, and it is for the PC, Windows, and Mac versions intermixed. Ugh! Overall, Typist sometimes works well, but there are too many hardware problems, the lousy manual, and other choices. Most of you would be well advised to wait for the next version of the product before buying.

Available: Now

System Requirements: Mac II or better. 4 megs of RAM.

Price $995 including scanner and OCR software

Caere Corporation
100 Cooper Court
Los Gatos, CA 95030

408/395-7000

DEST Personal Scanner

Advantages: Low priced innovative scanner that combines sheet fed and hand held technology.

Disadvantages: Questionable OCR software

The PC version of Personal Scan is already out, and DEST hopes to have the Mac version out before the MacWorld Expo in January in San Francisco.

The normal operating mode for Personal Scan is as a sheet fed scanner, but if the user has material that doesn't comfortably pass through a sheet feeder, the scan head can be detached and used as a hand held scanner. As the scan head captures an image eight inches wide, it can scan almost all material in a single pass. Also, the wide scan head is much more stable being drawn across the page by the operator than other hand held scanners, resulting in lower distortion and higher accuracy.

The only hold up on getting the Mac version of this product to market is the SCSI hardware, and DEST says they think they have it figured out. The other question I have is the Recognize! software. I have only seen it in demonstration, but it does not appear to be on a par with OmniPage or Accutext for variety of documents handled, format retention, speed or accuracy.

Available: Jan '91?

System Requirements: ??

Price $995 including scanner and OCR software

DEST
1015 East Brokaw Road
San Jose, CA 95131
408/436-2700

Accutext 2.0

Advantages: Xerox Imaging Systems claims it is usually as fast as and more accurate than OmniPage (I have yet to test it). Very good expert tools that allow superior results with imperfect documents.

Disadvantages: Still no text editor, or even a view of the text after OCR processing. Multiple column documents can be processed, but resulting text is always saved as a single column.

Accutext 2.0 has just shipped. Surprisingly, it still does not allow you to see, let alone edit, the word processing file the OCR processing produced. You must go to your word processor for that. Running you word processor along with Accutext under MultiFinder can be a ticklish business, as Accutext requires a full four megs of RAM for itself. However, if you have five, you might get away with it, especially if you use a smaller word processor, such as WriteNow.

Another option would be to open plain text documents with a DA word processor such as MiniWriter. In any event, System Seven should clean this problem up.

The principle improvements to Accutext are faster and more accurate processing. As the software was already the preferred package by power OCR users on the Mac for its accuracy and speed with difficult documents, I look forward to a chance to try it out.

Available: Now

System Requirements: 4 megs of RAM, Mac II or better

Price $795

Xerox Imaging Systems
535 Oakmead Parkway
Sunnyvale, CA 94086
408/522-3801

ReadRight

Advantages: Low priced innovative scanner that combines sheet fed and hand held technology.

Disadvantages: Small company new to the Mac.

Previously offering OCR software for the PC only, OCR Systems is introducing a Mac version and a Windows version, hopefully this January. ReadRight expects to be competitive because of a low price and an innovative list of features. It should work with a wide range of scanners including hand held ones. It can handle scans at up to 400 dpi, in font sizes of from 6 to 72 dpi.

ReadRight will include a combination error checker/spelling checker that will show the user words the software was uncertain of, allowing the user to correct them in the standard spelling checker way.

Documents can be saved in a wide variety of file types. It will recognize type styles such as bold, italics, underlined, superscripts, and subscripts. It will read multiple columns and save the columns and justification in the word processing file.

It will be interesting to try this product out. My principle concern is that the product description sounds too good to be true. OCR Systems, the company behind ReadRight,

has cancelled their booth at the last two MacWorld Expos, and the last Seybold show. At the Seybold show a year ago, I went by their small, undistinguished booth and talked with them. They were showing a rather obsolete OCR program for PCs only. If their product turns out as well as they claim it will, they have come a long way, very fast.

Read-It! Pro 3.0

Advantages: Established company. Low price. Automatic with trainable abilities. Works with smaller, older Macs

Disadvantages: The competition may be moving ahead of ReadIt technologically.

One of the first OCR products for the Mac, ReadIt has just been completely rewritten. In light of this, it is surprising how much the new version resembles the old in look and feel.

It is still basically a trainable package, with a special OmniFont type table that Olduvai expects to provide adequate recognition in most cases. I have yet to give it a good test, but it needs to have improved greatly to keep up with the competition. Other features being added include: automatic page decomposition, virtual memory support, multiple page documents automation, context sensitive help, and ability to read underlined text.

More innovative, but not as far along is Olduvai's project ReadForm, an OCR product specializing in reading forms. It will be available in two configurations, as an add on module to Read-It! and as a stand alone product. Needless to say, the text file can be saved ready for import by databases and spreadsheets.

WordScan Plus

Advantages: High quality recognition algorithm. Pop up zoom view of unrecognized characters.

Disadvantages: Slow to market. Untested.

Calera Recognition Systems is best known to Mac users for their $30,000 OCR hardware OCR product, the CDP 9000. While this product does provide the fastest and most accurate OCR solution available on the Mac, it requires the purchase of an additional $3,000 software package, TopScan. Disappointingly, TopScan did not unlock all the features in that magic box for Mac users.

One of the more attractive of the left out features will be featured in Calera's new OCR software only product, WordScan Plus. This is a pop up bit map of unrecognized characters. It is accessed by holding the mouse down on specially marked characters in the text of processed documents.

Other WordScan goodies include a style sheet for the resultant text file that can override the native formatting, the ability to define up to 100 recognition zones per page, built in dot matrix processing, context verification, and a text editor.

All Calera's products specialize in deferred job processing, the scanning of images to disk for later automatic batch processing by the OCR software. Did I say all Calera's products? Well, they plan on coming out with a stripped down version of WordScan for $495. It will be without the pop up bit map, the deferred batch processing, the dot matrix abilities, and only one zone may be defined per page.

Personally, I suspect Calera would be well advised to forget about the stripped down version and to price WordScan Plus at $795, the same price as OmniPage and Accutext. While WordScan Plus promises a nice list of extra features, it will have to be competitive in speed and accuracy to wrest any market share at all from the competition. The $495 WordScan would be going up against ReadRight and Read-It! Pro 3.0, both at the same price.

It's going to be an interesting Springtime, boys and girls!

Available: Jan '91?

System Requirements: 4 megs of RAM, Mac II or better.

Price $995 including scanner and OCR software

OCR Systems
1800 Byberry Road, Suite 1405
Huntington Valley, PA, 19006

215/938-7460.

Available: First quarter '91?

System Requirements: 2 megs of RAM

Price $495

Olduvai Corporation
7520 Red Road, Suite A
South Miami, FL 33143

305/665-4665

Available: First Quarter '91?

System Requirements: 4 megs of RAM, Mac II or better.

Price $995 including scanner and OCR software

Calera Recognitions Systems, Inc.
2500 Augustine Drive
Santa Clara, CA 95054

408/986-8006

Other Rumors

HSD, a German American company offering advanced scanners to both the Mac and PC market, has introduced the first OCR system for the NeXT. It works as a Service, the NeXT equivalent of a Desk Accessory. Also, the finished document is poured directly into the open application, such as a word processor.

Mouse Systems, vendors of electronic mice, have shown an infrared based hand scanner at the last two MacWorld expos. While they have not yet announced a Mac product or a release date, the technology is very impressive, avoiding most of the pitfalls of other hand held scanners. Two infra red sensors keep precise track of their X-Y coordinates. This requires the use of a plastic grid under the page to be scanned, but eliminates almost all distortion that reduces the accuracy of hand held scans for OCR work.

Don't hold your breath waiting for Caere's $12,000 Parallel Processor to show up on the Mac. Remember, this is a 386 machine equipped with four Motorola 68020 cards all dedicated to OCR parallel processing.

Larry Miller, VP of sales and marketing says it's not even on the development list. He points out that every company interested in the product had at least some PCs even if they had Macs in their office.

Another interesting attempt to realize another part of the OCR

dream is having difficulty coming to market, although it exists in advanced prototype in the lab. Citing cost cutting needs, Xerox Imaging Systems is closing their West Coast offices, previously those of their subsidiary, Datcopy, and consolidating operations in Cambridge, MA.

Among the casualties of these cost cutting measures is a product currently called Electronic Filing System. One of the executives choosing not to make the move to Cambridge may take the product with him and form a start up company.

This product is intended as the electronic filing system for an entire network of computers. It would keep track of all documents, text, images, and sound. It would have facilities to handle video when that becomes popular enough.

The primary interest of the product is its automatic OCR system that will allow office employees to drop documents in its hopper. The next time anyone is concerned about any of those documents, it will be available as part of the Electronic Filing System.

If and when the product makes it to market, it is currently slated to appear first in a DOS format, with the Mac version coming out later. What is important here is not the platform, but how this project represents how close we are coming to another OCR dream, that of a channel that will automatically integrate the flow of paper through an office with its computerized information flow.

Automated OCR processing, infra red sensors on hand held scanners, processed text flowing directly into any application, integrated OCR error checking and spelling checking... these are signs pointing the way to the future of OCR.

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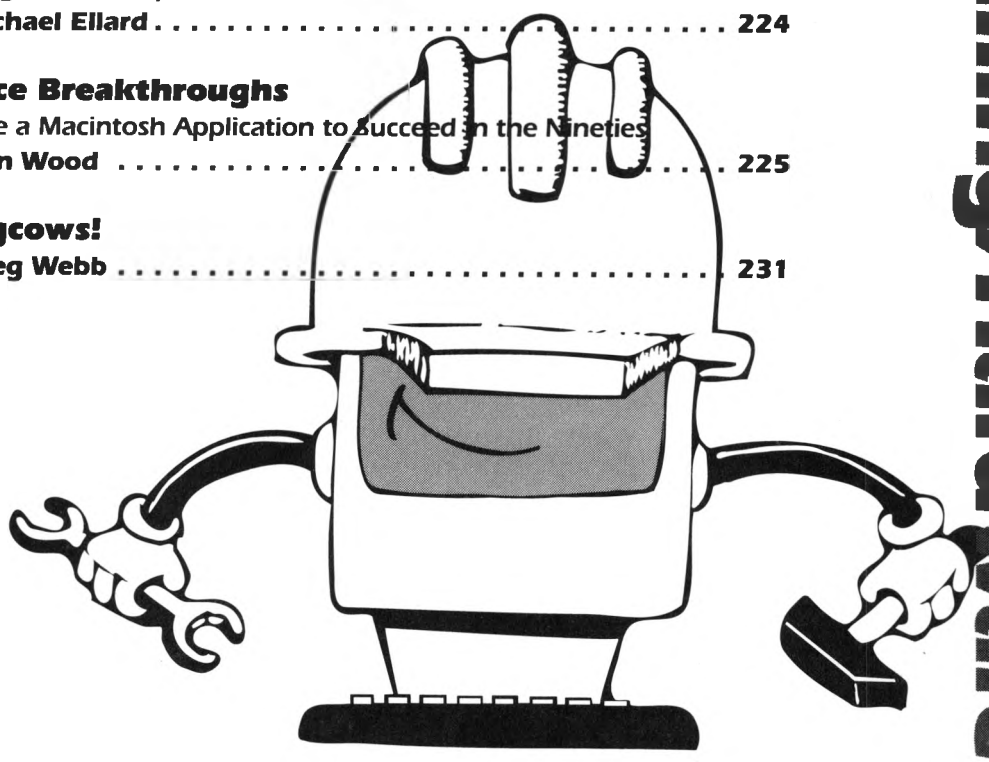

Hard Disk Management

by Elaine Beattie

Housekeeping is not a particularly fun topic. Neither is disk management. Something always interferes with the good intention of disk maintenance until an emer-

gency — lost data or a slow, sluggish computer.

I am a believer that most people use their computer efficiently and have some method of backup — that is until I was having my computer serviced and the technician quizzed me about my partitions. When I explained my simple backup system; he was surprised. He said my computer was the only one he had seen partitioned. He's been at this service store for over eight years!

Why Hard Disk Partition

When the hard disk is partitioned into floppy-sized areas, backing up becomes easy. Low-use partitions don't have to be backed up as frequently as high-use sections. The backup also becomes a disk than can be taken to work/home for continued use.

I do not backup my programs since I have all the original disks; my partition areas are for data only. When the data area is full I either trash the items I no longer need or copy the data to a disk which I archive, date, and lock. Then I trash everything on that partition and start over.

Efficient Operation

Only partitions used daily should be automounted. Other partitions should be mounted manually as needed and then put away — in this way the computer will operate more efficiently.

Confidential Area

Everyone needs a confidential area that is not available to the public. Partitioning such a space can be established with a password. Just remember the password!

Easy Backup

I alternate backups using 800K and high density disks. Each backup disk takes about two minutes which seems to be a good investment/insurance. Midweek I backup on 800K disks, while at the end of the week I backup on high density disks which takes less time.

Having backups on both types of disks gives me the option of taking disks to my home to work on, since my floppy at home is not a FDHD. The other advantage is that if you have a bad box of disks (which I did) and the disks fail after a short use time, you have another set of disks for retrieval. Another benefit for me is that I am in a real small office (I am the only Mac) so I could bring in my home Mac and use the 800K backup floppies if my computer at work goes out for servicing.

LaserWriter Nighttime Shutdown

by Kee Nethery

Your company has several LaserWriters scattered throughout the building. Of course, the last person to leave

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the building wanders the entire building and turns them off at night, and the first person to come in next morning turns them on, right?

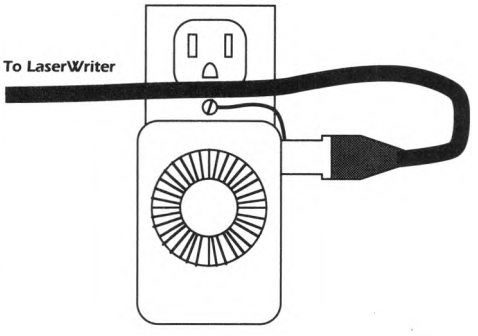
I doubt it. Here are two ways to automatically give your LaserWriters a night time rest.

Appliance Timers and Three Prong Adapters

Numerous hardware stores carry timers for turning appliances on and off on a daily basis. The timers cost less than $15 and can handle the rated load of a LaserWriter, but they are not three prong grounded devices. Your hardware store also carries three prong adapters, a three prong female socket with a two prong male plug and a grounding strap. The combination of these will give you a grounded three prong appliance timer that can automatically turn your LaserWriters on and off at night. It's been my experience that the timer, adapter, and LaserWriter power cord are an awkward combination that should be held together and fastened to the wall with tie wraps or duct tape. Otherwise the weight of the power cord can cause the contraption to come apart, so that the LaserWriter is no longer connected to power.

Advantages: Inexpensive, works well, easy to understand and troubleshoot.

Disadvantages: A kludge, people can mess with the timers and cause problems, turn off must be very late and turn on very early so LaserWriters are always available when people are in office.



Appliance Timer with Grounded Three Prong Adapter

X-10 and Burglar Alarms

The second method is a bit more sophisticated but it eliminates all the disadvantages of the appliance timers. X-10 modules communicate through power lines to control power to appliances, lights, wall outlets, thermostats, etc. X-10 controllers can be operated manually, operated via a computer interface, operated with remotes, operated via touch tone telephones, and so on. Each X-10 module has a unique network address that you set on the front of the module. X-10 controllers are configured to send On/Off messages to specific addresses. There is a burglar alarm control module that can sense a voltage and activate or deactivate a module. Combining the burglar alarm control module with the three prong appliance module can give you a system that turns off all LaserWriters when the burglar alarm is activated at night, and then turns them back on when the alarm is deactivated in the morning.

Most burglar alarms provide some form of voltage or relay output indicating that the alarm has been activated. If a voltage or relay output is not available, the voltage driving the LED on the alarm indicator panels is probably enough to tell the X-10 burglar alarm that the alarm has been activated or deactivated. A very small amount of hardware investigating with a digital volt meter

will help you connect the alarm system and X-10 burglar alarm control module. The X-10 burglar alarm module can be configured to send On/Off signals to an X-10 address. All the three prong appliance modules for the LaserWriters should be set to the same address as the burglar alarm. When the alarm is set at night, the LaserWriters are turned off. When the alarm is deactivated, the LaserWriters are powered back on.

Advantages: LaserWriters off when not needed & on when needed, all components can be hidden from view

Disadvantages: Some knowledge required to connect X-10 burglar alarm control to alarm system, if guards periodically patrol the area and deactivate alarm then LaserWriters will be unnecessarily cycled on/off.

Other Considerations:

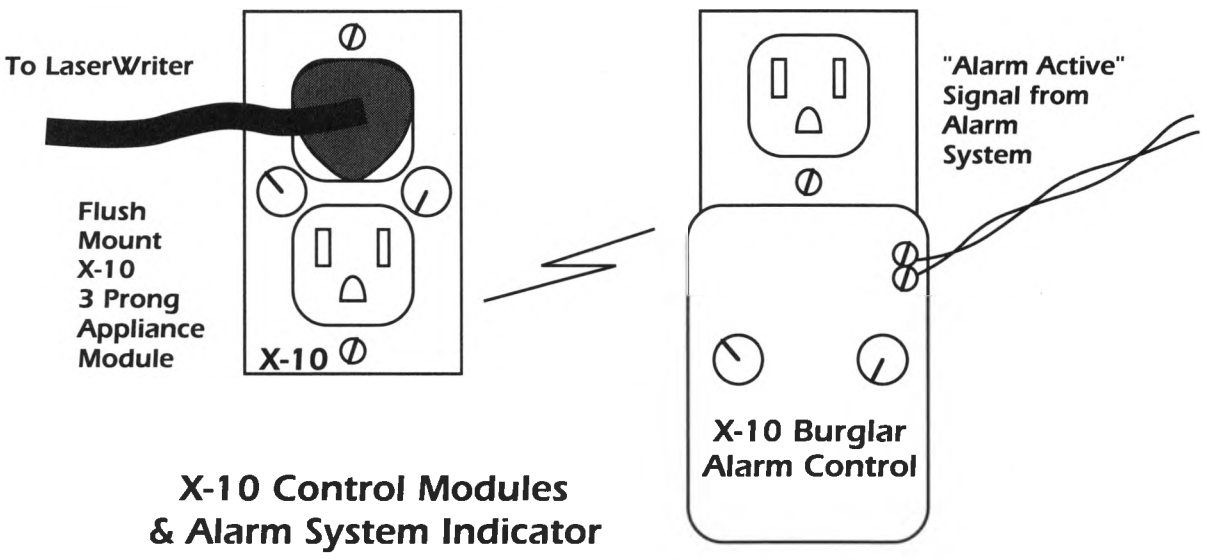
Regardless which method you decide to use, you should disable the LaserWriter power up test page so that you don't waste a sheet of paper each time the LaserWriter is powered on. CE Software sells a collection of software tools, one of which can be used to disable/enable the LaserWriter power up test page.

Kee provides AppleTalk expertise to companies with large AppleTalk networks.

Kee Nethery
Kagi Engineering Inc.
1442-A Walnut Street
Berkeley, CA 94709-9960

415/843-6140

kagi.kee@applelink.apple.com


To LaserWriter
Flush Mount X-10 3 Prong Appliance Module
X-10
"Alarm Active" Signal from Alarm System
X-10 Burglar Alarm Control

X-10 Control Modules & Alarm System Indicator

Using the CoStar LabelWriter with HyperCard

by Dan Dugan

I've been using the LabelWriter for several months now, and I find it very useful. Currently, I have it set up with a HyperCard script so that only three actions are needed to print an address label for a letter. After finding a name in my HyperCard address file, I punch a data switch to put the label printer on my modem port, click a button on the address card, and click the print button on the LabelWriter DA window that appears. My address label comes right out in seconds. I then click the LabelWriter DA's close box and punch the data switch again to change back to my normal modem patch.

An Overview of the LabelWriter

The LabelWriter does have many limitations. It cannot handle graphics or more than one font or font size per label. It has a fixed 5/16" left margin and a 1/8" right margin. The LabelWriter also distorts fonts, since the printer is 72 horizontal by 105 vertical dpi. The LabelWriter's software doesn't adjust for this, so fonts are compressed 68% vertically.

The LabelWriter labels cost five cents each from CoStar, so the cost of the the special thermal paper they use is also a consideration. The LabelWriter also has a mechanical problem when you print multiple labels. When two or more labels come out of the LabelWriter, they will usually curl around and get caught in the intake slot, thus jamming the printer. To print more than one label at a time, you need to reach over and flip up the end of the first label before it can jam. It doesn't make sense to use this printer for printing over a dozen labels, it's too slow and expensive. But while it may not be appropriate for larger jobs, the LabelWriter shines as a one-off instant printer.

The LabelWriter DA (version 1.10C) works fine through Suitcase II. It keeps three data files and one help file in the system folder, but unfortunately doesn't put the settings file icon back where it was after a change. The LabelWriter can print from its own lists or from text files with embedded plain-text command strings.

The DA's editing window does contain some minor editing interface violations. I talked with a CoStar representative at MacWorld '90 who said that they didn't plan to do anything with the DA, but that there would be a LabelWriter application soon that would produce graphics. I wish they would improve the DA.

HyperCard Scripts for printing an address on the LabelWriter

Here is a procedure which works with the my address list stack which has fields named:

Last Name, First Name, N2, Address, City-St, and Zip Code.

To work with the LabelWriter, I added a background text field named "holder" with

four lines in it. I put it in the upper left corner of the screen on top of the regular fields. I made a button *print label*. If your addresses are all in one field you can simplify the script.

The address stack script includes the following:

```
on openCard
hide field "holder"
end openCard
```

Finally the background button "print label" has the following script which assembles the fields into an almost always perfect label:

```
on mouseUp
 put empty into field "holder"
 show field "holder"
 if (length of field "First Name") > 1 then
    put field "First Name" & space into field "holder"
 end if
 put field "Last Name" & return after field "holder"
 if (length of field "N2") > 1 then
    put field "N2" & return after field "holder"
 end if
 put field "Address" & return after field "holder"
 put field "City-St" & space after field "holder"
 put field "Zip Code" after field "holder"
 select text of field "holder"
 domenu "copy text"
 hide field "holder"
 domenu "LabelWriter™"
end mouseUp
```

Refills For Your DeskWriter

by Richard Applebaum

Earlier this year I decided that I needed a printer that would give me better-looking output than the ImageWriter II I was using. Laser printers seemed the way to go. They are quiet, fast, and print at 300 dpi. All of those were features that I envied after living with my slow, noisy dot-matrix printer.

Then I found out that laser writers, besides being very expensive ($1,200 to $4,000+) had their own problems. The printing mechanism in a laser writer (whether it is post-script or not) is the same as the printing mechanism in a copy machine. Like a copy machine, when the glass and all the other internal optics are clean and operating just right, it produces excellent output, but when the optics get dirty, and the corona starts to wear out, the output is not quite so great. Another problem with laser printers is the the toner refills are in the price range of about $80 to $150.

The only major exception to this is the GCC IIP. I have been told that toner cartridges for that machine are only about $30.00. But even the GCC still has the same situation of using what is basically the same engine as a copy machine.

Then I heard about the Hewlett-Packard Deskwriter. The DeskWriter (at $850) is very quiet, faster than an ImageWriter II, and prints at 300 dpi (the same resolution as the much touted laser printers). What a deal! On top of that, there are *no* optics to clean in a DeskWriter. It simply produces consistently excellent output until the ink cartridge runs dry.

Ink cartridges are available for about $20.

After purchasing the DeskWriter for home and work, I found that they work excellently; however, the ink cartridges are only good for about 1,500 pages. I started checking around the various BBS's and heard some talk that if I bought the right kind of ink it was possible to refill the cartridges. After doing some investigation, I wound up speaking with a chemist at the Parker pen company. He told me that he had received a number of calls from people wanting to do the same thing, but so far they had not yet isolated an ink that would work in the DeskWriter. One thing he did caution me on was that the process involved in printing on a DeskWriter causes the ink to be exposed to high temperatures. This meant that most inks were excluded due to their flammability. The chemist then went on to tell me that there was a company in Cupertino named "Time to Market Associates" that had supposedly come up with the right ink mixture, and this company was getting ready to market their ink refills.

Time To Market Associates
20302 Pacifica Drive
Cupertino, CA 95014
408/446-4458

I called the company, and after talking to them extensively decided to test out their refill kit. Time to Market Associates sell their refill kit for $29.95. The kit includes a bottle with enough ink to refill a cartridge about 5 or 6 times, an injector body and tip, easy to follow instructions, and a very good paper towel (they call it a drip cloth). Refilling of cartridges can be accomplished with the ink cartridge in or out of the printer. Time To Market is an environmentally conscious company. If you save 5 of their injectors, and return them with you next order, you will get an additional $5.00 off the purchase price.

The refilling process is simple. Open the bottle of ink, and stick the point of the injector into the ink bottle. The injector is basically a syringe; to fill it you just pull back on the plunger and take in about 9 cc's of ink. Next, push the tip of the injector into the small hole in the top of your ink cartridge (this can be done with the cartridge in or out of your printer), and slowly press the plunger down. Average time to refill is about 30 to 45 seconds, and this is SO EASY to do!

Time to Market has only one additional word of caution–if you are refilling extra cartridges for future use, be sure to place some scotch tape over the cartridge tip to prevent the ink from drying out.

Cabochon's WPduet Reviewed

by Joseph O. Holmes

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CompuServe: 76216,663; GEnie: JoeHolmes

I originally bought the Tandy/Radio Shack WP-2 as a "data bucket," as someone once dubbed notebook computers. That is, I just wanted a way to write while I was away from my desk and then dump the results into my Mac. The WP-2 looked very promising. A three pound, dedicated word processor, it runs for ten or fifteen hours on four AA batteries. On sale it's less than $300.

But then I discovered that transferring files between the WP-2 and my Mac Plus was going to be a major problem. First, neither Tandy nor any one else makes a cable to connect the WP-2 to the Mac's serial port. Though I'm no klutz, my attempts at soldering one met with limited success (though I've heard that some users have had better luck). Even assuming a working cable, the WP-2's built-in Telcom software is arcane, non-intuitive, and extremely unforgiving. Files I did manage to transfer had to be stripped of carriage returns at the end of each line. All formatting was lost. In short, I was very, very discouraged. Then I bought WPduet.

WPduet, remarkably, solves all the transfer problems through one simple trick. It fools the WP-2 into treating the Macintosh as a floppy drive instead of a remotely connected computer. The flaky Telcom software is never invoked. WPduet comes packaged with a four-headed Hydra of a cable. One end fits either the DB-9 connector found on the older Macs (up to the 512ke) or the DIN-8 connector found on the Plus up. The other end will either plug into the WP-2's RS232C disk drive port or it can be used to attach a Tandy Portable Disk Drive 2 to the Mac, a procedure I didn't test since I don't have one.

The software consists of a single 63k Multifinder-friendly application, with a cute little black WP-2 as its icon. It's booted on the Mac in the usual way, by double-clicking the icon. Then, by choosing "Direct connect to WP-2" from the Direct menu, the Mac is put into its ready mode. (The first time that's done, and occasionally thereafter, WPduet prompts the user to select a default folder that will act as the virtual disk drive. The folder can be on any disk in any drive.) From that point on, the Mac is in a passive sending and receiving mode, which can be broken only by invoking the standard cancel command—Command-period. All the transferring is then run from the WP-2.

Learning to transfer files is simple, since every operation is performed using the standard WP-2 file commands, such as Copy, Delete, and Merge whcih run right from the WP-2's Files screen. If you've installed a RAM disk in the WP-2 (third-party 128k chips are available for about $80), then you already know how to perform all the operations necessary. If not, it's all in the WP-2 manual.

To copy a file, for example, from the Mac to the WP-2 (once the Mac is in its Direct Connect mode), go to the WP-2's Files screen, select the Diskette menu using the arrow keys, and press Enter to display the contents

of the Mac folder. The WP-2 thinks it's reading from a floppy disk, but in fact the Mac responds by sending a catalog of all the files in the selected folder. Now highlight a file from that list and press F1-C for copy. When the Target Device menu then appears, choose Memory or Ram Disk and hit Enter to begin the transfer. Then for fifteen seconds or so, the WP-2 screen reads "Working," and a window on the Mac displays "Sending Catalog," "Receiving Data," etc. The icon of the transferred WP-2 file will then appear in the selected folder on the Mac.

Uploads from the WP-2 to the Mac are relatively slow. I clocked transfer at about 80 bps, but since I don't expect any heavy duty file transferring, I don't consider speed to be a critical factor. Downloading from the Mac, however, is speedier. A 10k file took just 12 seconds, or better than 800 bps.

A more annoying slowness occurs at the WP-2's Diskette menu when attempting to select a file from those available on the Mac. It takes a couple seconds to move the highlight down to each file name on the menu; trying to highlight the last name on a list of eight or ten can seem to take forever.

WPduet translates files into any of five text formats as they are being transferred onto the Mac: a WP-2 proprietary format, plain text, plain text with carriage returns at the end of each line (for telecommunications), MacWrite II format (be warned—not the old MacWrite format), and Rich Text Format (used by Microsoft in Word and Write, and by T/Maker in WriteNow). Since the software takes care of all formatting, there is no need to use the WP-2's cumbersome ASCII-convert procedure. Files appear in your Mac's word processor in the Geneva font (with Chicago displayed where an alternative font was marked on the WP-2), and underlining, boldface, centering, and tabs are completely intact. There are never any annoying carriage returns every eighty characters. WPduet does not, however, support format transfers the other direction, from the Mac onto the WP-2.

The decision to include the WP-2 proprietary format was very smart, for it allows painless back-up of all the WP-2 files, in memory or RAM disk, onto the Mac. In fact, since you can choose to direct the transfer directly to the Mac's 3.5-inch floppy drive, the Mac can act as a very expensive WP-2 floppy drive. The Rich Text Format transfer appears on the desktop as a Microsoft Word icon; double-clicking it boots up Word! The same goes for MacWrite II. Quite an improvement over ASCII telecommunications transfers!

WPduet is a pleasure to use. It took me all of fifteen minutes to learn the basic procedures, and another half-hour of exploring to discover some features not mentioned in the 27-page, clearly written manual. One thing I discovered is that, since the WP-2 thinks the Mac is just a floppy drive, many of its standard File commands work just fine. Copying all files from or to the Mac employs the standard F1-8 command. It's an equally simple matter to Merge a file from the Mac into the middle of a current working document on the WP-2, or to use the View function to read any file on the Mac without downloading it. In fact, I found I could even delete files on the Mac by pressing the F1-D command on the WP-2! And the warning FILE EXISTS—Overwrite?(Y/N) appears whenever an attempt is made to transfer a file either direction when one with the same name already exists.

Some operations, however, apparently work only with a real floppy drive. I couldn't Rename files on the Mac with an F1-R command on the WP-2, and I couldn't Swap a file in working memory with one on the Mac (which might be useful). I don't consider either of these a major drawback. (I did not attempt to reformat my hard drive with the F1-F command!)

Although the WP-2 attempts to read the free space on any device, it told me I had 326k free on my hard drive instead of the nearly 30 megs that are actually free. My advice: ignore the reading. If you try to transfer a file to a full disk, such as a floppy,

WPduet uploads the entire file before checking the free space (it apparently has no way of knowing how large the file is going to be until it's received), and it then puts up a dialog box ordering you to choose a new disk. No damage is done, but the transfer must be started over from scratch, and a zero k file is left on the target disk. Just be sure to use a floppy with sufficient free space.

Even as I performed all these experiments, trying every operation I could think of, the WP-2 never locked up. I wish I could say the same for my earlier experiments with WP-2's Telcom.

The current version, 1.01, fixed at least one minor bug. But I have no word on another one. When I first used WPduet, at one point, as the Diskette menu listed the files on my Mac, it mysteriously began to multiply the name of one file. Every action I took in the menu caused the top file to be bumped off the list and another copy of the last file to be added. When I left that menu to do something else and then returned, the problem disappeared. It never recurred, and none of the files on the Mac or WP-2 were affected in the least. It may have been caused when I dragged a file to the trash on the Mac but failed to empty the trash. I decided to call Scott Andersen, the author of WPduet and the owner of Cabochon.

The WPduet manual lists no telephone support number, but I found Cabochon's number on my invoice, so I called. Andersen's answering machine took my message, and he called me back in less than an hour to discuss my experiences. (By the way, I've never met Scott Andersen, I have no association with him, and I paid full price for WPduet. I did not mention until the end of my phone call with him that I intended to write a review of WPduet.)

Andersen explained that he had seen the strange menu symptom appear early in his development, and when it didn't recur, he hoped that it had been solved. He said that it's probably a by-product of the WP-2's method of listing the catalog of the disk: rather than read the catalog and then hold the list in its memory, it retrieves the entire catalog from the drive each time it's redisplayed. That explains why moving the highlight down the menu is so slow. According to Andersen, the Mac responds to requests for a catalog much faster than the Tandy Disk Drive 2, so occasionally the WP-2 may be fooled into believing that multiple copies of a file exist. If that's the source of the problem, I'm not sure there's an easy solution, but it never caused me anything but mild inconvenience in any case.

WPduet is relatively expensive. At $99 (plus shipping) it adds more than 25% to the list price of the WP-2. But it comes bundled with a cable, which alone may account for $30 or more dollars of the price. To me, the WPduet was worth every penny. Before I got it, I was extremely frustrated at the gap between the three-pound data bucket I thought I had bought, and the quirky, fussy, buggy product that I owned. WPduet changed that. Now I feel like my Mac has a detachable 3-pound keyboard. And I take it everywhere!

Here's my wish list for future versions or WPduet. First, it would be very useful to transfer underline, bold, and other formats from the Mac onto the WP-2, not because the formats are useful in themselves on the WP-2 (which can't display underlining, etc.), but because text could make the round trip to the WP-2 and back without the need to reapply formatting. Another feature I'd like to see is default fonts other than Geneva and Chicago. Finally, I hope that Scott Andersen has the opportunity to bundle some actual programs for the WP-2 on the next disk. The little thing could definitely use a little macro program!

A Final Note: One warning that ought to be included in the next edition of the manual, and should have been included in the WP-2 manual, is to turn off the WP-2 whenever connecting any cable or power cord. Doing so with the power on will sometimes cause the low battery or low back-up warning to come on, and it's very resistant to being shut off.

This review was written entirely on the WP-2 and transferred to a Macintosh Plus with WPduet. Reproduction or use of any portion, without express written permission from Joseph O. Holmes, is prohibited. I assume no liability resulting from errors or omissions from this review, or from the use of any of the information herein. WP-2, Tandy, and Radio Shack are registered trademarks of Tandy Corporation. MacWrite and MacWrite II are trademarks of Claris Corporation. WriteNow is a trademark licensed to T/Maker Company. Macintosh and Multifinder are trademarks of Apple Computer, Inc. WPduet and Cabochon are trademarks of Cabochon, Inc. Microsoft and Rich Text Format are trademarks of Microsoft, Inc. Can you tell I'm a lawyer?

The Portable and the Coach Airplane Seat

or Who needs a weight machine, buy a portable

by Herb Dang

I borrowed a Mac Portable for Macworld in Boston this year. (thank you Apple and Mary Nicely) I carried it cross country (from Oakland to Boston) on American Airlines. At 16 pounds plus you get to carry quite a load. The original concept was to have a battery powered office but the state of battery technology and weight of the components of a portable office inhibit this. A 39 Lb package is not quite portable, maybe lugable or transportable. The idea that one could flip out the portable take a few notes and then put it away is not yet reality (except for Raines who is trying to get carpal tunnel on his portable). The weight of the portable on one shoulder and the Bernoulli on the other balance each other out, almost.

A portable (16 Lbs), a printer (4 Lbs WriteMove or Diconix), a drive (Bernoulli 16 Lbs), and a CD Drive (NEC or CD Tech 3 Lbs))

I used a Madson line bag and recommend the bag to anyone who has a portable, I could use the portable while in the bag and the various pockets can hold tickets etc in quick reach. The bag allows the Macintosh portable's handle to be out, this makes it easy to maneuver the portable around, this is very handy in the aisles of airplanes. The one negative thing that bothered me about the Madson bag was the lack of access to the rear ports on the Macintosh. (I understand a future version of the bag will allow access to the ports via a Velcro flap.)

The Apple Bag is bulkier and must be opened to get access to any stored items, the use of the Macintosh requires the removal of the portable from the Apple Bag. The Apple bag was a good carrying case for the other things; power supply, extra mouse, disks, extra battery, and was better off checked in as luggage. The handle on the bag is flexible and when the portable is in, it makes for a hard to maneuver package. Also the Apple logo on the bag makes it a target for a luggage thief (saying steal me).

If you are not going to use the portable on a flight than there is another option The Zero Halliburton people make a Baggage handler proof aluminum case for the portable. Check the portable and go.

The portable had 9(nine) MEGs, a Fax Modem from PSI (thank you PSI and Dave Fixon), and a 40 MEG Apple hard Disk. The 9 MEGs only worked under Multifinder and the two boards together drew down the battery in 4-5 hours (keep the charger handy when you change boards or use the floppy drive allot). To conserve power it is better to shut down than to sleep when you have this much ram. The memory is pseudo static ram and is located in the expansion slot, it will work with Apples ram in place. The jump from 1 to 9 MEGs is the only tricky part, the 1 meg machine will not really run multifinder, and finder will not run with 9 megs. The answer is to set up a disk to boot into multifinder and then reset the internal disk startup to multifinder after installing the board. The Ram is a series of boards 2 megs on each board (we had 4 boards in all).

I will not get into the question of which slot should have the ram in it. The portable has two slots, one expansion and one ram slot. There are several boards for ram expansion in the MacPortable, several that use the ram expansion slot allow for a trade in on Apples ram board. PSI's board worked fine and had no bugs in operation, and fits in the Portable with Apples ram in it.

The fax modem works with an INIT and a CDEV. The software allows to print to the fax as if it is a printer, chose the internal port(the card) or the external one for the modem (on the portable CDEV) and you are in action. I discovered that the modem / fax seemed not to work in the loaned portable, but worked in another portable(the loaned

portable had two dead serial ports). The software and card worked well in the other portable and seemed very easy to use. The software allowed Faxes to be printed then sent latter. I did not recieve any faxes but it is a send and recieve fax.

The portable was usable in the airports with no problem, but find a table or surface or the balancing act (computer on the Knees) will get to your back and knees, fast. The power supply fits in the outside pocket of the Madison bag and came in handy(plugs were easy to find in the airports I was in (Oakland,Dallas,O'Hare, and Boston).

Using the portable on an airplane was not as easy. The portable just fits between the seat and me on the tray table. It was larger than the tray table and if the passenger in front of you reclines then take a deep breath; the keyboard will be in your stomach. Remember to turn down the sound (I was on a red eye flight).

The screen was readable in the airport lighting and the reading light on the plane. The cursor did not disappear easily, but did get lost occasionally. If you want to take notes in a dark room get a book lite powered by a battery, and that worked fine. A accessory every Mac Portable owner needs the *Itty Bitty Book Lite* it clips on and has an AA battery pack.

The hard disk on the portable is a must to transport all your programs and data. To increase battery life the use of the ram disk is essential. The hard disk will turn off and response is fast. Using nine megs, both program and data fit in the ram disk. Floppy use is to be avoided; it drains the battery and is slow compaired to running a ram disk.

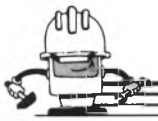
I had a Bernoulli portable drive on loan from Iomega (thank you Bernoulli and Jeff Laws) the drive worked after a discussion with Iomega (the disk drive was sent with a defective floppy and the wrong cartridge). The people at Iomega were very helpful. The drive is Heavy, 16 pounds. To most of the weight is the battery (which is removable) and it lasts about 4 hours. The battery takes 6 hours to charge, if off or 12 hours to charge(I never got to try this), if the drive is running. The drive shuts down when not in use like the hard disk in the portable, saving the battery, so it does last longer than 4 hours if the drive is not in use constantly. The Bernoulli is slower than a hard disk (there is another option I did not check out, MicroNet makes a 40 MEG Hard drive powered from the floppy port) and stores 45 MEGs. The Bernoulli media cartridge is about the same size as a Syquest cartridge but costs less. The Bernoulli drive costs more than a syquest drive. The drive weight makes the combo of a portable and drive a workout to move. I would call the Bernoulli drive a second chose to a hard disk if you have power, but the only way to go if you need to store lots of data and have no power where you are going .

The trials of a booth manager, the Bernoulli was shipped by Federal express and guess what, it took two weeks to arrive at the show(a week late). I got to play with the drive for only a short period of time. The moral here is make the drive lighter. It could go with the portable and not be shipped, the great thing about the two printers (Kodak and GCC) are they fit in the bag with the portable and only weight 4 Lbs. When someone picks up the two together (mac and drive) they will not want to carry Portable and drive very far.

The portable traveled with the booth crew between the hotel and booth, this was one of the positive points. The portable was there to work (play) with back at the hotel.

The portable is a transportable and not a true portable. It is too heavy and it will not work to take occasional notes. The machine comes in handy if you need to do some work and is much easier to transport than a SE or Plus. I think the Portable is a transportable Macintosh, not the portable we are waiting for. The machine is faster than a SE with a hard disk. And was a treat for me a "Plus / 512K" user.

The bottom line is if it were my money I would not buy one. I would get a portable/ notebook PC and run programs that can exchange files with my mac. I would use Lap Link and transfer files via their great cable and software. I have transfered files using their software before.



Indispensable Removable Advice

by Fred Swan

Disclaimer: Fred Swan is employed by a manufacturer of removable media drives.

For the last couple of years, removable media drives have been the subject of much debate, a great deal of praise, and not a small amount of criticism. Unfortunately,

for those of you with enquiring minds, I'm not going to get into any of that stuff here. I've reached the conclusion that most people who have already formed opinions on these drives are unlikely to change their minds. Adding my own biases to the existing rumors, gossip and such will only cause more mayhem. If you want dirt, you'll have to come to a BMUG meeting and ask me in person. Instead, this article will focus on two things: 1) helping the prospective removable drive owner find the drive that is most likely to meet his or her needs and 2) helping current owners better understand their drives so as to get the best possible performance from them. The article is primarily about Syquest drives, because they are most common in the Mac market, but I include comments on rewritable optical drives as well. In addition, there are a lot of general observations and recommendations that can be applied to any removable drives or even fixed drives.

I Have Good News...

The benefits of removable disk drive technology are now fairly well known. Nevertheless, I'll list some of them for you, just in case.

1. *Security*. Because the cartridges are removable, you can easily take your data away from your desk. You can hide your stuff from the kids, the boss, the Russians or even the The Establishment. Data cartridges can be locked in vaults, put in fire-proof boxes or hidden under your mattress.
2. *Data Transfer*. Not only can you hide your stuff, you can give it to anybody you want. Megabytes or even gigabytes of information can be easily sent across the office, to your service bureau or across the world. "SneakerNet" can still beat Ethernet when it comes to really big file transfer.
3. *Expandability*. I know very few people, my father being one exception, who can get by on less that 20MB of hard disk storage these days. Most people, especially me, just don't have the discipline to throw stuff out. Not to mention the time it takes to weed through megabytes of files to sort out duplicate or out-dated files. On the other hand, very few people can afford to buy, today, all of the storage that they will need for the next five years. With removable drives, you can start small and upgrade as necessary.
4. *Portability*. If you tend to wander from place to place and would like to take your data with you, removables are a good solution. You can take your sales demos, presentations and charts, spreadsheets, databases or even your special Critter Editor-customized version of Crystal Quest with you, wherever you go. Put

megabytes in your briefcase, purse or backpack. If you go overseas, or just like to pretend, you can configure one cartridge with the typical American system and set up others for Kanji or Italian.

5. *Backup.* If you have a big hard drive, or several, backing up to floppies is no fun. Backing up to tape is usually slow and always brings to mind old memories of of unraveled cassettes on highway shoulders. Removable drives offer random-access storage, high speed (compared to a lot of tape drives, even optical is fast) and relatively high reliability without giving you disk swapper's elbow.
6. *Archiving.* This is an area where removables really shine. If you do graphics, sound recording, programming or anything else that generates a lot of data which you don't always need but can't throw away, cartridges can be your savior. Archiving on cartridges is much less expensive and takes up less room on your bookshelf.

...And Bad News

Now that I've given you all that great news, we need to get back to reality. Removable drives fail. Cartridges get hosed and mechanisms break. But they're not alone. Floppy drives break. Tape drives break. Hard drives break. It's ironic, but the part of your computer which stores all of your important data, your drive, is among the most unreliable components of your entire system.

The reason for this unreliability is simple and is not the fault of bad design, shoddy workmanship or planned obsolescence. Disk and tape drives are, along with printers, the only portions of your systems which combine electronics with a large number of very complex moving parts. And you know how reliable printers are. Ho-ho.

Overall, strictly electronic components are very reliable. Their reliability increases as the chip count decreases. The main enemies of electronics are static, power surges and heat. This is also true of the electronics portions of disk drives, removable or fixed. The mechanical portions of drives, however, are susceptible to other types of damage because they are moving at very high speeds adjacent to other parts also moving at high speed. Parts which are supposed to touch others wear out due to friction. Parts which are not supposed to touch will be severely damaged if they do come into contact with another moving part. Removable drives add complexity to the combination of moving parts and therefore can be even less reliable than a typical fixed drive. However, by selecting the right drive and treating it properly you can minimize the risk of problems. You can also limit the damage, should a problem occur.

Just What Is a Removable Drive, and How Can I Get Involved?

Among the most important things you can do, to ensure that your experiences with removable media are good, is buying the right drive. That also means buying it from the right company because, at one time or another, you will probably be depending on their support. You should conduct some research before making a purchase.

One good source of information are magazines such as MacUser, MacWEEK and MacWorld. They frequently feature reviews of removable drives that offer performance specs and overall impressions of the drives and the companies that make them. However, there are a couple of things you have to look out for. First of all, the tests that they run are generally somewhat artificial. It's not possible for them to test drives in all of the different ways you will use them. Performance ratings for the same drive are often very different from one review to another. they can only look at drives for a relatively limited period of time, because they have other reviews to do as well. You on the other hand are going to be putting up with your purchase for hours, every day, for several years.

Bear in mind also that the prices listed in magazines are generally retail prices. This means that mail order drives seem much more affordable. Before you reject a drive simply because it is expensive, see what kind of discounts you can get on it through resellers. You can also gather a bunch of like-minded friends and try to get a volume discount directly from the manufacturer.

Be careful about trusting too much in the advice of dealers. They frequently are not well informed about the drives they sell. In addition, because of the low profit margin they get on hardware, they may be unwilling to spend enough time helping you reach the right decision. There are some notable exceptions, but for the most part, dealers will encourage you to buy whatever they have in stock, whether it meets your needs or not. It is also tremendously unlikely that they will recommend any product which they do not carry, even if it is exactly what you need. Nevertheless, if you can find a good dealer, I recommend buying that way. The extra after-purchase support they can provide may be helpful to you later on.

BMUG is also an outstanding source of recommendations for drives. Not only have they used most of the drives on the market at one time or another, but they take Help-Line calls from users of every drive known to mankind. The BMUG technical staff tends to know the real story on reliability of various drives and their manufacturers. Check out the newsletters and flyers for the "Choice Products" sections. And feel free to call the Help-Line too.

Once you've narrowed your choices down to a few, talk to the manufacturers themselves. Of course, they are usually going to give you information that makes their product look good. But, since you know that up front, you can sort out the B.S. and get information not available elsewhere.

Ask them if they have a 30-day money-back guarantee. Long warranties are great, but subject to the long-term success of the company. On the other hand, almost every company will still be in business thirty days after you buy. This guarantee will let you decide if you like the drive; it will also let you try to get it working with your particular system. If you have made every effort to get a drive to work for three weeks, and it still doesn't, send the sucker back. Many companies have this guarantee but don't advertise it. Be sure to ask.

You should also test their tech support. I don't mean sending them a bunch of essay questions or asking them for a urine sample. What I do suggest is calling tech support before you buy their drive. Call about three times. This will give you an opportunity to see how well they respond. Does somebody help you right away or do you get stuck on hold for a week and a half. If they take a message, how soon do they call you back. Don't call without anything to ask, though. While you're at it, make sure that tech support is free and that there is a toll-free (800) number for that support. If that is not the case, you could be in for an expensive lesson if anything goes wrong with your drive.

I would ask one question each of the times I call. The questions should be meaningful, something that makes a difference to you. In addition, they should not be general questions about performance or compatibility. Most companies prefer that those questions be answered by sales people, if you have not yet purchased a drive. Here are the three things I would ask...

1. "Do you have an electronic bulletin board system (BBS) for technical support?" If you have a modem, a BBS can save you time and money by letting you get software updates and technical notes without having to call and talk to somebody. You can also get the stuff when you want or need it, instead of waiting for it to come in the mail or paying for Federal Express.
2. "Hi. I'm thinking about buying your so and so drive. Could you please send me a copy of the manual so that I can look it over?" This is a very reasonable request. Unlike software manuals, most hardware

manuals are fairly short and inexpensive. And, since they don't have to worry about piracy like the software vendors, there is no good reason for them not to send you a manual. If they refuse, they're trying to hide something (which is a bad sign), they're too cheap to send you one (a worse sign), or they don't have a manual (which is the worst sign). I would hesitate to buy from any company that won't send me a manual for their drive.

Asking for the manual also lets you check other things. For example, how long did it take for you to get the manual. You can expect a similar time period when requesting software updates. Check the manual for a section which has FCC information. If no such chapter exists, then they probably do not have FCC certification and you should strongly consider not buying that drive. Look over the manual to see if it's accurate and if it offers anything above the most basic information. Manuals usually reflect accurately the technical knowledge of a company and their commitment to their customers.

3. For the third question, ask about something in the manual. If there is something that you don't understand, ask about that. If you did understand everything, pick something at random and ask about it. For example: "When should my drive be terminated?" If you don't understand their explanation, then you're going to have problems later when you really need an answer. If the answer conflicts with the manual, make sure that the tech support person is the one that is correct. If not, you can figure that you're going to be on your own if something goes wrong with your drive.

Now that you've evaluated tech support, and hopefully narrowed down your choices, there are a couple of other things to consider. First, try to find out if the drives are UL-approved. Believe it or not, a lot of drives are not. A non-approved drive can be a fire or electrical hazard. If possible, choose a drive with external or externally switchable termination and SCSI ID. If you don't get this, then you're going to be in for a hassle every time you change your system configuration.

Finally, try to find out how compatible the drive is with other drives of its type. Much of the benefit of removables is the ability to use one cartridge in several different drives. If you can't do this, you're not getting your money's worth and you're probably going to be very irritated at some point. With Syquest-type drives, compatibility is pretty easy. All drives and cartridges are made by Syquest and they are not modified, or should not be, by the integrators. The only possible conflicts are in software; that is easily solved. (I'll discuss that a little later.)

Optical is another matter. There are a number of different manufacturers of base mechanisms and even more for cartridges. Make sure that the drive is ISO and ANSI standard. This gives you basic compatibility. Next, make sure that the integrator has not changed the drive, its controller or its ROMS. Doing so can cause interchange nightmares. If they have changed something, do not buy the drive without using it for a few days first (or at least make sure they have a money back guarantee).

By now you probably have enough information to make an informed purchase. Go for it. But when you do, make sure that you get at least two cartridges (one is usually included with a drive). If you can afford to buy three or more, do it. I'll explain why a little later.

Living in the Removable World

When you get the drive, save all of the packing materials. Remember, disk drives fail. If yours does, you will need the original box to return the drive. Not keeping the box may wind up costing you a lot of money if the drive gets damaged in shipping or if the manufacturer is really uptight.

Next, if you haven't already done so, read the manual. Remember, this isn't software. You can't just reinstall from the master disk. If the drive has some idiosyncrasy that you don't know about, and you accidentally goof

up the drive, you're going to have to get it fixed, perhaps at your expense. Besides, later on when you call tech support to find out how the whatsit works, they're liable to ask if you read the manual. They'll be amazed and impressed when you say yes.

Now that you've got the drive and you've saved the box and you've read the manual, you're still not done because you have to install the bloody thing. Fortunately, it's much easier than assembling the legendary bicycle on Christmas Eve. On the other hand, the drive is more delicate and will respond poorly when kicked out of frustration.

Now, I'm not going to walk you through the whole installation process. That would be incredibly tedious for me and equally boring for you. But I will give you a few hints which you should try to keep in mind. Technically, you can have up to about eighteen (18) feet of SCSI cabling. This includes the cabling inside the drives as well as the external cables. In practice, the less cable length you have, the better. The cables should also be well shielded. If yours seems shoddy,too long or too thin, go out and get yourself a good one. I recommend MacCables from Monster Cable, available at a dealer near you.

The Terminator III: Abbott and Costello Meet the Standards Committees

Termination is a nightmare. And I'm being generous. According to The Authorities, a chain of SCSI devices is supposed to be terminated on each end. And World War I was the war to end all wars. In reality, proper termination is whatever works without nuking your drive and frying your data. Try the termination on each end routine first. If that does not work and you have a very short chain of drives, try not terminating the end furthest from the Mac. If that does not work, try longer or shorter SCSI cables. If you have a relatively long chain, you might even have to terminate on of the devices in the middle. In other words, you may have to use no termination, or one, two, three or four terminators. The only rule which should be adhered to at all times is this: Do not externally terminate a drive which is also internally terminated. If you do not know if your drive is internally terminated or not, ask your dealer or the manufacturer.

By the way, it is usually pretty easy to determine whether or not your termination is working properly. If it is not working you will see a lot of read/write errors and the Mac is going to keep telling you that your drive needs "minor repairs." You might also get folders which cannot be opened, or empty folders which cannot be thrown away. For that matter, your drives may refuse to mount entirely.

If you are hooking the drive up to a system that includes a SCSI scanner or printer, or, horror of horrors, both, be prepared call tech support when the drive doesn't work. And be prepared to experiment. Scanners and printers wreak havoc on the SCSI bus, usually because of flaky, and internal, termination. You will likely have to put the offending device at the end of the SCSI chain. And while we're on the topic, never, I repeat never, be so careless as to format, initialize or update drivers on your printer or scanner with your drive formatting utility. That is a very expensive mistake. If possible disconnect the printer or scanner before formatting, just to be sure.

Don't Smoke in Bed or Things Your Mother Warned You About

All disk drives are very sensitive to environmental conditions. This is even more true of removable media drives. They should be kept in an area that is as dust free as possible. This also means that, if you want to prolong the life of your drive, smoking near the drive is a no-no. Extreme temperatures can also be a hazard. Generally, if you're not comfortable, neither is the drive. Another environmental concern is electromagnetic interference (EMI) or radio-frequency interference (RFI). This interference can be caused by very strong magnets, video monitors, TVs,

and some other electrical devices. Keep your drive and cartridges away from these devices as much as possible. They can scramble data. At the very least, try to keep your SCSI cables away from the beasties, that is where the data corruption is most likely to occur.

When you handle the drive, make sure that you're not carrying any static electricity. Touch something before you touch the drive. A metal pipe or cabinet will do, although zapping a cat's nose is more entertaining. Never touch the drive connectors with your hands, this is the external area of the drive which is most sensitive to static. The manufacturer spent a bundle of cash on anti-static floors, workbenches and grounding employees. Give them a break and be careful yourself.

Keep a good handle on your software. Most problems with drives that I have seen have resulted from software problems of one sort or another. Make sure that you have only one System and only one System Folder on any one cartridge or drive. If you have several drive volumes mounted at any given time, and each has a System Folder, try to make sure that all of the System versions are the same.

Use an INIT (startup document) management program. This will allow you to easily turn INITs on and off, change the order in which they load and, if you need to call tech support, is an easy way of knowing which INITs are active. The INIT manager which I currently recommend is Startup Manager which is part of the Now Utilities package (version 2). Not only does it seem to be the most reliable right now, it also has a scanning feature called "Profile" that will poll your Mac and drives to determine versions, model numbers, configurations plus list all applications, CDEVs and extensions on a drive. There are plenty of other handy utilities in the package too. Go buy it. You should also own and use a virus protection and eradication tool.

If you have removable drives from different companies, use just one company's formatter and mounting INIT. Mixing drivers is likely to cause you grief. Cartridges may not mount and data may disappear. If you work in an office with a bunch of different removables, try to get the entire office to standardize. You'll be glad you did.

Make sure that you keep current with the latest versions of the software that you do select. Drive companies update their software regularly to add features, fix bugs, improve performance and enhance compatibility. This is where that good tech support department with a BBS starts to come in handy. If you're not sure if you need newer software, call the manufacturer and ask. But, don't expect the company to call you to tell you to update, or even to send you a notice in the mail. By and large, there is not enough margin in the drive business to allow that kind of service.

You Never Know How Much You've Got 'Til It's Gone

The next bit of advice I have is one you've heard before. Backup. You cannot always prevent data loss, but you can prevent yourself from losing all your data. Always have a backup. In fact, you should always have at least two backups that are recent. Working without a backup is just asking for trouble. And I say that with first-hand knowledge. I've lost more data than most people have ever had. I've also spent hours trying to recover the stuff with data recovery software. (My job entails using beta drives almost exclusively. Sometimes the drives are so messed up I can't copy files off to make backups.) Having a current backup is much nicer. I don't really have a backup program that I can recommend wholeheartedly. I use Retrospect because it does what I need and I find it convenient. The important thing is that you find a program that suits your needs and encourages you to make regular backups.

Be Prepared

As soon as you can, after getting your drive, you should create a "Removable Drive Sup-

port Kit." This kit should go with you wherever you take your removable drive or cartridges. Here's what you should put in the kit:

1. *A "Super Cartridge."* This is a cartridge which you use with a second drive for comparison purposes. It should have a bootable System Folder, SCSI Probe or a similar mounting utility, SUM II and Norton. You should never, never, never put this cartridge in a drive which you suspect of being bad. The idea is this... The disk is perfect, so if you run the same software on it that you have on your main cartridge, and run it on the same computer with the same set-up, but run it on a different drive, then you can determine the cause of your problems. If, using the "Super Cartridge," you can reproduce the problems you have been seeing, then your problems are either related to the software you are using or your hardware configuration. On the other hand, if you can not reproduce the problem, then you probably have either a drive or cartridge problem. If you then take the cartridge that you are having difficulties with and your problem recurs on the second drive, then it is the cartridge that is at fault. If the problem cannot be reproduced, then it is probably your drive that is at fault.
2. *A backup cartridge.* Always have at least one current backup of each of your cartridges. This way, if one of your carts goes bad on the way to the service bureau, you don't have to go all the way home to get another one. The wise person will have two backups though. Here's why... You put your cartridge in a drive. The drive grinds away, then tells you that your cartridge is bad. "Great ,"you say, "I have a backup!" So in goes the backup cartridge. The drive grinds away and then tells you that your cart is unreadable. You have now done three things: 1) You have determined that the drive or configuration destroys data, 2) You have lost all of your data, 3) You have learned why you should always have at least three backups.
3. *A copy of the drive's formatter and utilities diskette.* This one is obvious. You never know when you will have to update a driver or reformat a cartridge.
4. *A bootable floppy disk.* If you want, you can combine this with item #3. That's pretty handy. In any case, you should make sure that the System Folder includes SCSI Probe and a good interactive virus detection program. (Rival is my current anti-virus solution. It has the added benefit of warning you when you are about to erase a disk.)
5. *A penlight or small flashlight.* This can be used to let you see inside a Syquest drive. This way you can see if the heads are bent, broken or missing entirely. Kind of a frightening concept, isn't it?
6. *SUM II and The Norton Utilities for the Macintosh.* You should have both of these utilities. They complement each other nicely. When you get SUM II, make sure that you create a VIF file for your cartridges. If you partition some cartridges, you will need a different VIF for each partitioning scheme. This will come in very handy should you need to work on the drive at a later date. Most drives have a spare VIF, but I have seen cases where the spare has been trashed too.
7. *Yet another cartridge.* It is always good to have a spare cartridge around, just in case you run out of room on your main cart. It is also handy when checking out drives you think might be bad. You want to avoid using your main data cartridge as a guinea pig.
8. *A card with the phone number of tech support and the drive's serial number.* Because of the mobility of removable media, you may find yourself away from home or the office when you need tech support. Having these numbers handy will help, should the need arise.
9. *A small notebook or pad of paper and a pen.* These are handy for taking notes about the problems you are having, recording instructions from tech support, making little doodly pictures while on hold wait-

Note: The VIF or Volume Information File stores important data about a drive or cartridge including the capacity and the location of the first readable block on each partition.

ing for tech support and for getting the phone number of that really cute person on the barstool next to yours.

Okay, okay. I know that's a ton of stuff to be hauling around but we want to cover all bets, right? Feel free to pare the list down somewhat, but if you don't have something when you need it, you can't say that I didn't warn you.

On The Proper Care and Feeding of Removable Drives

We'll cover Syquest drives first. You can do a great deal to prevent problems from occurring and prolong the life of your drive and cartridges.

The first thing that you should do is get a Cleaning Kit. This should be available from your dealer, or the company from whom you bought the drive, and is not very expensive. If your source claims to not know what you are talking about, tell them the kit (or "C-CART" as Syquest refers to it) is Syquest part number 58061-001. The kit includes a cleaning cartridge and some foam pads. The pads should be replaced after about ten uses. Replacements can be ordered separately.

You might also want to get some cleaning fluid. Due to some environmental regulations, Syquest cannot legally provide this fluid with the kit. The stuff you need is Freon-Mallincrodt #2857 (112 Trichloro - 122 Triflouromethane). Sounds pretty nasty, doesn't it? It is. It destroys the ozone layer. You may be able to find it at Radio Shack, for a while anyway. However, Syquest's recommendation, and mine, is that you use the cleaning kit dry. Absolutely never use the kit with any fluid except the one mentioned above. Anything else, especially alcohol, will really mess things up and will void your warranty. You should clean your drive about once every couple of months. If you use the drive a lot, or are in a very dusty environment, you might want to clean it more often. Cleaning will take less than one minute.

Syquest drives are very sensitive to power fluctuations. Dips in power or "dirty" power can cause data loss. You should always use a surge suppressor. Very prudent people will get a UPS (uninterruptable power supply). American Power Conversion has some systems that are especially designed for the Mac and are very affordable. Remember, they will protect your Mac too. If you live out in the boonies or someplace with really lousy power, you might want to get a power filter. This is built-in to some UPS systems. A power filter eliminates the lows and highs in the current and makes sure that it has the proper wave form. I do not use a UPS myself, but will probably get one at some point. I have never had a problem, but know people who have.

It is also important that the power supply in the external drive box be of good quality. You can spend money on a UPS and filter, but if your drive's supply is lousy, you are still going to be in a world of hurt. This is one reason for not building your own drive or from buying one at a super-discount house. The drive needs at least a 30 watt supply; 45 watts is preferable. In addition, you should avoid the supplies that automatically switch back and forth between 110 and 220. At this time, those supplies are not reliable enough to ensure data integrity all of the time. Some companies go as far as testing each supply with an oscilloscope before approving them.

There has been some debate as to the use of Syquest drives vertically as opposed to horizontally. In general, you can use them either way with no problem. BMUG's current choice product for removables is DPI, which is a vertical drive. BMUG has never had a drive-related failure with these drives. However, I do have two recommendations. First, use your cartridges one way or the other. If you typically use them upright, always use them upright, and vice-versa. Second, if your cartridges have a hard time spinning up, you may have a weak power supply. In this case, you should probably use the drive horizontally. Never use a drive at

an angle; it must be completely vertical or completely horizontal.

Temperature can affect the way data is written. Remember, the inside of a drive is much warmer than the ambient temperature of the room in which it sits. A cartridge which has been in a running drive all day gets equally warm. Taking a hot cartridge, cooling it down and putting it in a cold drive can cause problems. To avoid problems, consider the following precautions. Make sure that your drive has room to breathe; don't block the fan. If you are going to leave the drive running all day, but will only access the cartridge once every few hours, remove the cartridge when it's not being used. This will keep the cartridge at a fairly constant room temperature. In addition, if you use cartridges to backup all of your work at the end of the day, so that you can take it home and do more work, you should not use the same cartridge that has been in the drive all day. Otherwise it will be hot in the drive, but cold when you get it home. By the same token, if you leave a cartridge in your trunk and it gets very hot or cold, let it sit at room temperature for about an hour before trying to use it.

With regard to leaving your drive on overnight, or turning it off, I have mixed feelings. If after a typical day of use, you remove the cartridge and it feels warm, you can probably leave the cartridge in the drive overnight. If, on the other hand, cartridges are hot when you remove them, then you should remove them and turn the drive off overnight. In addition, if your drive's environment is dusty or is subject to power outages, you should turn the drive off overnight. If you do have drive off overnight, remove the cartridge and store it in its protective case. According to Syquest, the drives should be good for 30,000 power-on hours, or 10,000 disk insertion/power up/power off cycles.

Finally, there are certain fairly obvious precautions you should take. It is amazing how often they are overlooked and cause mayhem. Never move the drive while a cartridge is inside of it, whether the drive is running or not. Never leave a cartridge sticking halfway out of a drive. Never eject a cartridge while the green or red/amber lights are on. If you turn a drive off with a cartridge inside, wait at least twenty seconds before ejecting the cartridge. If you eject a cartridge, put it in its protective case and leave it there until you want to reinsert it in the drive. Never put a cartridge in backward, upside-down, or sideways. Never force a cartridge into a drive. If you have to force it, it is probably backward, upside-down or sideways. If you have small children, make sure that they don't put anything, like floppy disks or toy soldiers, into the drive. If you are letting someone else use your drive, watch them very carefully to ensure that they do not break any of these magic rules.

In general, these rules all apply to the optical drives as well. There are a couple of notable differences, though. One difference is that, because of the way the drives are built, head crashes are inconceivable. This should not be taken as a challenge however. The drives are still reasonably delicate and can be knocked out of alignment if you slap them around.

The most important difference is in the cleaning. With Syquest drives, you do not clean the heads or the disks, you clean the spindle on which the cartridges sit. The opposite is true of opticals. You should clean them periodically, but you clean the cartridge. Ask your dealer or the manufacturer of your drive for a cleaning kit. This is usually a special cloth which is used to wipe off the disk (not the outside of the cartridge). If the disk is seriously stained, you can use ethanol. Do not use anything else and do not use too much. Be sure to wipe the disk gently and in a radial fashion. By radially I mean from the center of the disk to the outside edge. Do not wipe in circles, like on a window, and do not wipe axially, like with a record, or you will be wiping your data out with along with the dirt. Only use approved cleaning cloths; anything else might scratch the disks. At some point in the near future,

there will be mechanisms which will cleans the drive lens. In the meantime, do not try to clean the lens yourself.

In Case of Emergency, Break Glass

But don't throw your drive out the window. What do you do if something goes wrong? The first thing is, in the immortal words of Douglas Adams, "Don't panic." Most problems with removable drives are easily solved and, if handled properly, will not result in data loss.

The typical removable drive drama begins with one of the following opening scenes: 1) You insert a cartridge and it does not come up, 2) You insert a cartridge and the Mac says, "This disk is unreadable, do you wish to initialize," 3) You insert a cartridge and it refuses to spin up completely, but the drive treats you to an LED light show, 4) A cartridge mounts but does not allow you to copy things, open files and folders, etc. and, 5) You insert a cartridge and it makes terrible noises. All of the following advice applies equally to Syquest and optical, except for the light show which the optical does not provide.

Let's take the worst case first. You insert a cartridge and it starts clacking or makes sounds like a metal lathe. Turn off the drive and wait for the disk to stop spinning (remember the 20 second rule). Take your flashlight and look inside the drive. If the heads, there should be two of them, no longer seem to be where they used to be, it's time to send the drive in for repair. Don't risk another cartridge in that drive. If, on the other hand, the drive looks okay, then take a formatted but empty cartridge and put it in the drive. If it makes the same noise, use the C-CART cleaning kit. Then reinsert the blank cartridge. If it still makes noise, send the drive in for replacement. If the drive sounds okay at any of these times, do a verification on the blank cartridge. If that works out, your drive is probably fine. If you have a backup of the first cartridge, send in the original in for replacement. If you do not, reinsert the cartridge but be prepared to turn the drive off immediately. If the disk comes up, make a backup immediately. If you hear the noises, shut off the drive and return the cartridge for replacement. Ask for the data to be recovered, if possible.

Going in reverse order, let's take on number four. Try shutting down the system and restarting. If the problem continues and this is the first time you have used the drive in this configuration, try adjusting the termination and cable lengths. If you have been using the drive in this configuration for a while and this is the first time you have seen these problems, insert a second cartridge and see if it has the same problems. If it does, you either have a brand new drive problem or, more likely, you have software conflicts. Turn off all of your INITs and reinstall the System. You may also have to rebuild the Desktop and/or run Norton Utilities Disk Doctor on the cartridge. It probably needs repair. If that does not work, try to recover the data then reformat the cartridge. If the cartridge cannot be reformatted, you know what to do. Send it back.

Sometimes, when a cartridge does up spin up all the way, the drive will try to tell you what is wrong by flashing its lights at you in one of several combinations. This can be very helpful, if you know what the lights mean. Each combination has a different meaning and each sequence begins with the green light and ends with the red/amber. Some of them are very specific and technical, giving you information that you might not understand. What I will give you here is a basic guide to uncovering the real meanings and taking action based on that. If you insist on knowing exactly what is going on, call Syquest and ask, or get one of their OEM manuals. That manual also includes the sense keys and error codes which may come in handy if you have problems while using a formatting utility.

Number of Blinks in Sequence			
Green	Red/Amber	Cause	Take This Action
1	1 - 3	Bad Controller	Return drive
1	5 - 7	Bad Drive or Cart.	Test with second cart, return drive if you get the same result
2 or 3	1 - 7	Bad Drive or Controller	Return drive
4	1 - 3	Bad Drive or Power Supply	Return drive
5	1 or 2	Bad Drive or Power Supply	Return drive
5	3	Bad Cart or Drive	Try a different cart
6	1 - 3	Bad Drive or Power Supply	Return drive
off	flashing	Bad Cart, Drive or Power Sup.	Try a different cart
flashing	off	Cannot Read	Try a different cart

If you get a combination not mentioned here, contact technical support. Note that when I say return drive, that is pretty much all that has to be said. Never open your drive subsystem without written permission from the manufacturer. There is very little, if anything, that you can do once you get in there. Absolutely never open up the drive itself. Not even the integrators are authorized to do that. Internal components can only be repaired by the original drive manufacturers. Opening the drive will void your warranty and that of the integrator.

If you insert a cartridge and the Mac says, "This disk is not a Macintosh disk, do you wish to initialize," never click initialize. Always click eject. The minute you initialize, your data will be gone. Try ejecting the cartridge and reinserting it. Try cleaning the drive and then reinserting the cartridge. Insert a blank, formatted cartridge and see if that comes up. If it does, you have a cartridge problem. If not, suspect the drive or cabling. If it is a cartridge problem, try rebuilding the Desktop, running Norton or, as a last resort running SUM II. If you still cannot get it back, try to recover the data using one of the aforementioned utilities. Then, reformat the cartridge. If it will not format, return it.

Finally, we get to the ever popular "my cartridge won't mount" syndrome. First, try to mount it with SCSI Probe. If that doesn't work, shut down, restart and try again. The next step is to try rebuilding the Desktop on the offending cartridge. No luck? How's your termination and cable length? Is this the first time you have had this configuration set up? If so, play with termination, cables and the order of the devices. Do you have the mounting INIT installed? Some of the faster Macs will not mount an optical cartridge at startup without the INIT. If you do not have a cartridge in the drive at boot up, you may have problems getting a cartridge to mount unless you have the INIT installed. Try using the formatting utility to reinstall the driver. The next step is to try repairing the drive with Norton. You should also check your INITs and think about reinstalling your system.

Those are the basics of getting stubborn drives to work. If you continue to have problems, call tech support.

Help! Won't You Please, Please Help Me!

If you need help, or are unsure of what you are doing, call technical support. It is great to be self-reliant, but do not lose your data for the sake of being independent. Tech support people get paid to help people like you. They probably know a lot of things that I cannot fit into this already bulging article. They should also have current information. That being said, we all know that there is good support and bad support. But, there are also ways that

you can make any kind of support even better. If you are interested, read on!

The first thing to do is to get to know the support people before you have a problem. Call them with questions or bugs or whatever, but get to know them. Find out which support person you think is best and most reliable. Ask for that person when you really need help.

Be nice. Tech support people talk to angry people all day, every day. You may well be angry when you call, but that won't help you very much when it comes to getting your problem taken care of. By being nice, you will actually be more memorable than if you act like an ogre. You may even get special treatment because they like you. To carry that one step further. If they have really helped you, tell them how much you appreciate it. You might even send a thank-you note.

Be prepared. When you call, be at your computer if at all possible. Be sure you have your drive's serial number. Keep a written record of all of the problems you have had, including the exact text of dialog boxes and error messages. Make list of all of the solutions you tried and what the results were. Know your machine. You would be amazed at how many people do not know which model of Macintosh they have or how much memory is in it. You should also know the versions of your drive and software driver. There is usually a "Get Info" feature in the formatting utility which will give you this information. The more help you can give to tech support, the faster they can solve your problem.

Call as early in the day as you can. This way, you will be one of the first unhappy people they will have dealt with that day, their attitude and energy levels will be better. They will also have more time to run around getting information and approvals, more time to call you back and more time to get that emergency software to shipping before Fed Ex leaves for the last time that day.

Finally, take careful notes of every call you make, including when you call, when they answer, the names of the people you talk to and exactly what they say. This serves several purposes, the first of which is that you won't forget what they told you to do. It will also make you think about what they are saying. If something does not make sense, you are more likely to notice. If you have to call back for more help, you can tell then exactly what transpired last time. And, if you have to get rough and talk to a supervisor or write a letter, your evidence will be complete and convincing.

Removable drives can be great, but they can also be a pain. If you heed my advice, even a part of it, your experiences with the drives are likely to be good most of the time.

Prototyping Games With HyperCard

by John R. Powers, III

This paper was originally presented at the 1990 Computer Game Developers Conference, San Jose, CA.

Great game ideas frequently start with questions. Why not have a game with...? What does it take to get the computer to do...? How can I get this to happen...? Like a craftsman, the game designer starts with the question and molds the answer into an outstanding computer game. This article is about a tool that helps the game designer create a better game quicker and easier.

We'll review the benefits of creating a game prototype, then we'll get into the why and how of HyperCard. Finally, we'll describe a game that was successfully developed using a prototype in HyperCard and then converted to native code in Tandy/IBM, Apple II, and Macintosh. This is *not* a discussion on why you should develop games for the Macintosh in HyperCard. It is about using HyperCard as a tool to develop games written for Tandy, IBM, Apple II, Amiga, Atari, Macintosh, and any other computers. HyperCard is the means, not the end.

The author thanks Leslie Grimm, Dennis Caswell, and Lynn Kirkpatrick for allowing him to use the benefit their experience in developing "Playroom" as research for this article.

Why Develop a Prototype?

The early seeds of a game idea can take shape on paper or in the form of computer code. The paper is easy to use, but flat, lifeless, not interactive, and usually does not communicate well. The computer code is interactive, but time-consuming, bulky, and difficult to change. What is needed is a preliminary model of the game in a flexible, plastic, and interactive form; a form that can be easily tested, changed, retested, and changed again until it is molded into perfection. That is the function of a prototype.

The prototype becomes the game model which allows you to try out variations. It is the software workbench upon which you can "tinker." You can implement new ideas quickly and see if they are effective It is "interactive game design" that captures the dynamic nature of the game and of the designer's creativity.

Developing a game idea on paper frequently leaves out the details. The concept is good, but have you thought it through? Usually, you don't discover that you overlooked some very nasty details until you have solidly embedded the game in code concrete. The process of creating a prototype will help uncover those details before it's too late.

Buried deep in any game is a set of algorithms that define the game strategy. A prototype gives you a chance to work out these algorithms in a flexible form.

The graphics for a game never look the same on a computer that they do on paper. A prototype shows the graphics on the computer screen, like they will appear in the final game. Integration of the graphics can be done within hours, giving the designer immediate feedback on whether or not the graphics are appropriate for the game.

A prototype can be used for testing the game concept. You will constantly interact with the game design to refine it. You can give the prototype to you friends to let them try it. What about the game is difficult to understand? Where do people get stuck? What parts are the most fun? Is the game too easy or hard? The prototype gives you and your associates a chance to find out first hand.

Your game prototype becomes a model of the game. Just like you can use it to try out the game, you can also use it to communicate the game concept to others. It really helps to show the game in operation rather than describe it with words and pictures. Take the prototype to your favorite publisher. Let them see for themselves what the game is like. Let them interact with it. Let them see how good you are at game design. Let them be impressed with your attention to detail. Let them ask "what if" questions and find the answer right way. Isn't that a lot more effective than trying to communicate your wonderful game idea on paper and with hand gestures?

Finally, your game prototype becomes the spec for the implementation. Rather than write down exactly what the game should do and what it should look like, show it in the prototype. No written spec is needed. The prototype becomes the reference point for implementation on all platforms. Changes from one platform to another can be explained as differences from the prototype. If someone else is coding your game, and this will usually happen if your publisher is planning a multiple-platform release, they will find the prototype to be much more helpful than a written spec. They will see the game in operation, see the actual graphics, and can examine your algorithms in detail. There will be a lot less chance for misinterpretations because all the assumptions have been stated and all the details have been covered.

Why use HyperCard for Prototyping?

Let's assume that you are not familiar with HyperCard. Most people are not. While it comes free with every Macintosh, not everyone has a Macintosh. HyperCard is software, not hardware. There is no card with HyperCard, the "card" refers to the metaphor - an index card. HyperCard is a tool for creating and managing information. The information can consist of text, sound, graphics, anything else you can digitize, and even external devices like Laserdiscs.

HyperCard consists of a program called HyperCard and data files called "stacks." That's "stacks" as in stacks of index cards. HyperCard runs under control of the data in the stacks, you create a stack to define how you want HyperCard to run. Remember the BASIC programs that you wrote long ago? Your BASIC program was a data file run by the BASIC interpreter. HyperCard is a multi-dimensional leap from that simple concept. You don't write BASIC programs any more, you create stacks.

HyperCard stacks are object oriented. This means that they consist of collections of objects. Each object has graphics, text, properties, and procedures. Rather than separating procedures and data, object orientation keeps the procedures and data together. Once you get used to the idea, object-oriented programming is incredibly modular and flexible. That is what HyperCard is like, incredibly modular and flexible. The objects in HyperCard stacks include cards (for the index card metaphor), buttons, fields, and backgrounds. Each object can have an appearance (it's graphic), properties (visible, invisible, and many more), and a procedure (called a "script" in HyperCard parlance).

HyperCard is both an authoring system and a delivery system. All the necessary tools needed to create HyperCard stacks are included. Options allow you to hide the authoring tools when you want HyperCard to be a delivery system. The tools include a

fully integrated paint program and a scripting language called HyperTalk.

HyperTalk has about a hundred commands and functions which give you complete control over the interaction with the user. In addition, the language is extensible thru the use of external commands and functions. There are also a large number of powerful graphic and sound editing tools that are completely compatible with HyperCard.

Let's summarize some of the features of HyperCard that make it ideal for creating game prototypes:

- Rich in authoring tools
- Highly user-interactive
- Integrated authoring and delivery system
- Powerful authoring language
- Lots of graphics and sound support
- Modular, flexible, and extensible

Conversion Considerations

We are advocating the use of HyperCard as a prototyping tool, not as an end-user delivery system. As a result, conversion from your HyperCard prototype stacks to the native code on your favorite computer will be important. The following are a number of considerations in the conversion process.

HyperCard is object oriented. Traditional operating systems and their programming languages are procedure oriented. HyperCard passes messages among its objects in response to internal and external events. Traditional systems poll for events or have interrupts which execute procedures. There is usually a hierarchical organization to a traditional program. HyperCard, because it is a collection of objects that can be organized in any fashion, is not necessarily hierarchical. The upshot of all this is that the organization of your scripts (procedures) in HyperCard will not convert directly when going to traditional native code. The algorithms will convert fine, but how you organized your scripts and how they interact may not be a good model for the native version. This means that the programmer will need to spend some time thinking through the organization of the native code before converting the scripts you have written. Jumping right into traditional coding from a HyperCard scripting model without some planning can be problematic.

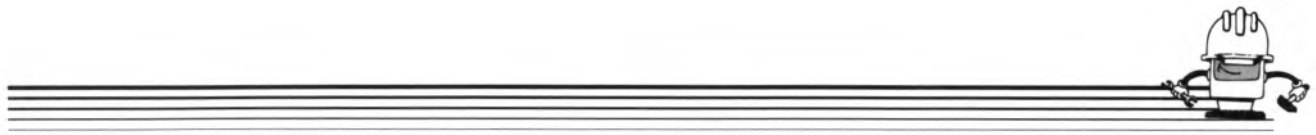
HyperCard is a memory hog. The file and RAM requirements are big. You will usually get a significant disk and RAM savings when converting to native code. In the example which I will describe below, the native code version was two-fifths the file size of the HyperCard prototype.

HyperCard is an interpreted system. This provides enormous flexibility during development (which is what we want), but can be slow during delivery (which is what we don't want). There are tricks that can help and we will discuss them below, but you will usually find that the native code version will be faster.

HyperCard is beautifully designed for ease of use. Unfortunately, this also can mean ease of disuse. Mechanisms are provided for protecting the code from the user, but no mechanism is provided for copy protection. This is not a major concern for a prototype, but if you are not careful, you may find your game prototype stack as part of a collection on a large dial-up network.

Finally, HyperCard introduces a user interface bias. You will find it so easy to use the mouse with your game prototype that you may forget that most computers don't have mice. HyperCard encourages the use of the mouse and discourages the keyboard. In fact, HyperCard is almost keyboard hostile. Be careful in your early design not to forget the keyboard user. Include that in your prototype.

Prototyping Tricks

The following are a series of tricks that you might find useful when prototyping games with HyperCard. They are presented in no special order. Most will make a lot more sense to you once you start using HyperCard. If you are already an experienced HyperCard

user and don't see your favorite trick, let me know and we'll add it to the list.

Use hidden fields to store constants and variables. Rather than store your constants and variables in local or global HyperTalk variables, use a field. Set the field property to visible for entering and editing the values. Set the field property to invisible when you want to demonstrate the game. Using fields for this makes it much easier to inspect and tweak the values.

Animation in HyperCard can be faster than you would expect for an interpreted system. There are several tricks that can help. They include the use of button icons, field fonts, and tables. By the way, these are very old programming tricks applied to a new medium.

Button icons can be customized with icons of your own design. Create a series of icons representing each frame in an animation sequence. Write the HyperTalk script to change the icon in a transparent button for each frame in the animation sequence. Programmatically change the location of the button for apparent motion on the display. Both processes are quick and easy. The icon size is limited to 32 by 32 pixels, but you can build larger objects by combining icons in mosaics.

Field fonts are more flexible in size and can also be used for animation. Create a font containing the graphic characters for your animation rather than text characters. Put these characters into a borderless field one frame at a time for the animation effect. The location of the field can be changed programmatically for apparent motion on the display.

The button and field animation techniques can be used with tables to create table-driven animation. The use of tables makes it easy to tweak the animation sequence and synchronize it with sound or any other effect. Use a hidden field to store the animation data. For example, you may store icon number, location, delay time, and sound index as rows in a table. If desired, write a small script to record the location of the icon as you manually drag it across the display. These stored locations can then be used as the path in your table-driven animation.

HyperCard provides for a high degree of modularity. Take advantage of this by using separate stacks for different game modules. Do this only for modules that don't require rapid transitions because while it's easy to go from stack to stack in HyperCard, it isn't fast. If you have different sub-games, put them into separate stacks. Having modular stacks will cause each of the smaller stacks to run faster. They will be easier to maintain and convert. HyperCard supports inter-stack communication and sharing of resources nicely. Accordingly, put your development resources in the home stack so that all stack modules can share them without duplication.

Feel free to create small, independent stacks for researching a game design issue. It's very simple to create a new stack and you can experiment without cluttering up the regular game stack modules. Use the small stack to work out the design issue and, when you are happy with the result, copy the relevant objects into the appropriate game stack.

Build a library of HyperCard objects that you think may be handy for prototyping. These include icons, fonts, clip art, and handlers. Your library should also include external commands and functions, native code extensions to HyperCard that can be easily attached to any stack. Thousands of these extensions have been written and are available for free or for a small charge. They can be used to display images, control external devices, process data, or virtually any computer operation. Check the popular computer networks for X-commands ("XCMD") and X-functions ("XFCN"). A few external commands and functions may require licensing fees if they are distributed to end users, but since you are using them for a prototype, this should not be a problem. If you crave some real programming in C or Pascal, you can also write your own external commands and function. But, beware, programming external commands and func-

tions requires knowledge of the Macintosh toolbox and operating system.

Build your prototype on an external hard disk. It is easier to transport than floppies and will be faster when running from hard disk.

Use a Mac II or SE/30 model computer. The Mac II family and SE/30 are faster than the Mac Plus and SE and will help during development and make your game look better during a demonstration.

Avoid using Macintalk. This is an inexpensive and easy way to get speech in your prototype, but it can lead to problems. First of all, Macintalk is an officially unsupported Apple product so if it doesn't work, you may not be able to be it fixed. It probably will not work on future versions of the Macintosh operating system. And you may find it difficult to convert the Macintalk capability to other platforms.

Allow room for the menubar in your design if you ever expect to convert it to a native code for the Macintosh. Even if you hide the menubar, be sure that it doesn't obscure important graphics when you eventually show it.

Make provisions in your prototype for hiding your development aids. This can be done easily by including one or more global variables when can be used as flags in the HyperTalk scripts. One state of the flag allows development aids to be shown, and the other hides them. A simple, and possibly secret, keyboard combination can change the prototype from an authoring system to a delivery system.

There are a number of very useful applications on the Macintosh that are excellent tools to use in prototyping games with HyperCard. Examples are Farallon's SoundEdit, Aapps' MicroTV, and MacroMind Director.

Farallon's SoundEdit is a full-featured sound recording and editing tool. You can record, edit, and playback digitized sound. These sounds can be played back in your prototype using external commands provided in the software.

Aapps' MicroTV is a low cost video digitizing tool. You can hook up a video camera, VCR, or TV antenna to MicroTV to capture video. Tools are provided for operation and display from HyperCard.

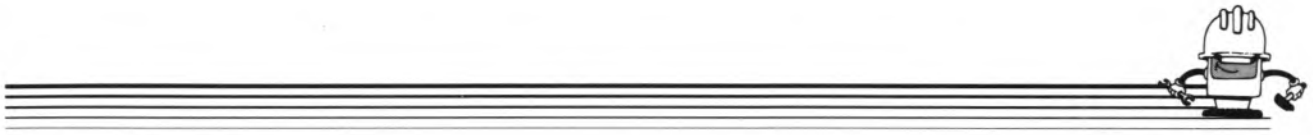
MacroMind Director 2.0 is an animation and presentation tool with built-in authoring and delivery capability. It includes capabilities for creating animated objects, 'tweening animation, and synchronizing simultaneous animation of multiple objects. Tools are provided for animation playback from HyperCard, however, a license fee is required if you distribute the MacroMind tools to end users.

For more information there is a wealth of sources. Dozens of books have been written about HyperCard programming. I've seen what Dan Shafer and Danny Goodman have done and can recommend any of their books highly. Join a user group. HyperCard enthusiasts are unusually good about sharing. You may even find someone who will write that special external command for you for free. The online networks have forums and libraries rich in HyperCard information. Some of the more popular include GEnie, Compuserve, America Online, and Prodigy.

Playroom

There is a recently-released computer game that was first developed as prototype in HyperCard. It is *Playroom* and its creators are Leslie Grimm, Dennis Caswell, and Lynn Kirkpatrick. The publisher is Broderbund and it is published in Tandy/IBM, Apple II, and Macintosh native code formats. The HyperCard version stayed just as a prototype and is stowed deep in a few personal software museums somewhere.

Playroom is a child-sized world of learning experiences consisting primarily of the following five games:

The Cockoo Clock .	learn to tell time
The Mixed-Up Toy	switch around parts of a toy to help creativity and hone analytical skills

The Mousehole . . . a counting game for one or two people
The Spinners Toy . . a counting game for one person
The Computer . . . . match words to pictures to help develop reading and spelling skills
The ABC Book . . . . tell stories in pictures to help creativity

And there are lots of fun surprises and variations for the child (and parent) along the way.

The game started as a prototype in HyperCard. Leslie and Dennis created the game concepts and did the programming while Lynn did the graphics. The prototype was refined and used for field testing with young children to determine age level and interest. After field testing and refinement, it was demonstrated to Broderbund as a HyperCard stack and an agreement was made to publish. No written game spec was necessary, the prototype stack because the spec for conversion to native code for Tandy/IBM, Apple II, and Macintosh. Programmers from three separate software firms were commissioned to do the conversion based on the prototype stack. The final graphics were converted from the prototype stack and colorized for the native format. The final product was released in late 1989 and is almost identical to the prototype.

The game went from an idea to a field-tested, functional prototype in only 5 months. The remainder of the time was spend with conversion, marketing, and packaging considerations.

Chronology for Development

Date	Months from Start	Event
May, 1988	0	start developing game idea
June, 1988	1	first outline of game idea
August, 1988	3	field test HyperCard prototype
October, 1988	5	showed HyperCard prototype to Broderbund
November, 1988	6	letter of intent with Broderbund
December, 1988	7	contract with Broderbund
January, 1989	8	start Macintosh conversion
March, 1989	10	start Tandy/IBM conversion
October, 1989	17	ship Tandy/IBM version
January, 1990	20	ship Macintosh version
March, 1990	22	ship Apple II version

John enjoys helping people use and understand computers, particularly Macintosh computers. He is an independent software developer who supports his clients by designing software products, programming, writing software documentation, managing software projects, and generally helping to create useful tools and products. He also enjoys writing and has published in MacTech Quarterly, MacTutor, and the Journal of Computer Game Design. His products have ranged from computer games to multimedia development tools. He has done this for over twenty pleasurable years and plans to do it for many more. People can contact him on AppleLink at "Easy.Street."

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The Programmer's Survival Guide:

Career Strategies for Computer Professionals

by Michael Ellard

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Janet Ruhl's The Programmer's Survival Guide is one of the most interesting computer books I have read in a long time, and it isn't even about computers. Unlike many "business success" books, *The Programmer's Survival Guide* doesn't try to provide an all-encompassing formula which dictates your every action in the business world. Instead, the Guide spends its time giving an almost sociological description of corporate life: it covers a number of subjects including corporations, workers, career paths, and recent changes in the computer marketplace. As a result, the book reads like good fiction. It is not only insightful and pragmatic, but interesting and entertaining as well.

One valuable feature of this book is that it doesn't try to provide any *right* or *wrong* career path. Instead, it describes a multitude of options which may be available to the reader, and then says something like, "Well, now that you know what your options are, you'll have to make your own choices." Whatever you are interested in doing, it is described here, whether it is programming, tech support, management, or consulting.

This book covers your entire career path. It not only describes how to find and get a job, it also tells you which jobs you should probably avoid, how to get (or refuse) promotions, how to tell when you've advanced as far as you can in your company, and how to change jobs when that time comes.

Before I make this an unqualified thumbs up, I should include a caveat which will make many BMUG readers balk. Janet Ruhl, is a Mainframe programmer, so her focus is on corporate programming careers. The Macintosh, NeXT, Windows, and MS-DOS don't appear at all; this book isn't really intended for microcomputer users. However, the first 130 pages doesn't deal with computers at all, but with corporate careers and culture. This means all programmers can benefit from reading this part of the book, no matter what machine they work on. I particularly recommend the section starting on page 41 entitled, "Why Management Doesn't Like Programmers." Even if you don't buy the book, you should sneak into a book store and browse these ten pages.

The second half is more focused on details of working with large Mainframe systems. If big Mainframe systems give you the willies, you will probably want to avoid most of this, though you should still read Chapters 13, 15, and 16. These chapters cover programmer burn-out, corporate cultures, and salaries — subjects which should interest you no matter what system you are working on.

If you care enough about computers to read the BMUG Newsletter, then you should read *The Programmer's Survival Guide*. Even if you are not actively seeking a career in a computer-related field, this book provides a fascinating look into how corporations organize and mange their computer people. While not all of its recommendations are germane to microcomputer programmers, it can still be a valuable resource no matter what system you are going to be working on.

Note: If you are having trouble finding a copy of The Programmer's Survival Guide, it should be in stock at Bay Bridge Books, a friendly neighborhood bookstore in downtown Oakland. If you have a credit card, they will take orders by mail or phone and ship your books to you.

The Programmer's Survival Guide: Career Strategies for Computer Professionals
by Janet Ruhl

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User Interface Breakthroughs

How to Write a Macintosh Application to Succeed in the Nineties

by Dan Wood

Apple Computer, still attempting to write System 7.0 (which should be available by the time this newsletter decomposes), has come across waves of criticism from

the industry for not producing the easy, consistent human-computer interface that the Macintosh is supposed to feature. Instead, they simply release "Human Interface Notes" to developers, in an attempt to restrict the growth and maturation of the Macintosh user interface.

These notes, sent to all *Apple Patriots*, carry the tone that if a company's software does not conform to the standards set in these notes, the software will be loathed and rejected by the buying public. These notes, which range from prescriptions on what command-keys should be used for standard menu items to guidelines on how a *yes/no/cancel* dialog should be graphically arranged, are ludicrous—people are not creatures of habit; we seek *innovation*, each time we use a program! Yet Apple's tendencies in writing its own system software and utilities shows that there must indeed be some intelligence at Apple, some driving force which goes beyond the prescribed limits of the Apple user interface. Until recently, There was only the proxy evidence of this creative genius: programs such as the "Map" control panel, with its many features available through creative use of the option, command, and shift keys; Font/DA mover, which is truly the most Multifinder-friendly program in existence; and the Installer, with its clever method of setting options by particular sequences of keys pressed on the keyboard, are three excellent examples of this level of creativity.

But recently, a draft was leaked from the Human Interface Group at Apple which shows that their full-time devotion to MultiMedia exhibits has—or rather, *will*—pay off. It seems that this draft, in preparation for the next mailing to "Apple Patriots," is indication that, publicly, Apple will have finally caught up to the world of third-party software development greats like MicroSnot.

The rest of this article, then, is a distillation of this document, along with some of my interpretations of its contents. I am very proud that BMUG can be the first publication to bring this document to the public; after all, MacWreak has gotten too many great inside scoops from Apple in recent months.

Introduction

The leaked Apple document, a hefty ten pages in all (apparently requiring the resources of the entire Human Interface Group for the last three years), is divided into three sections. The first, originally given the heading "Innovation at All Costs," discusses the importance of all programs breaking free of the established conventions of their predecessors. We will only touch upon that section here. The basic point is that when a

programmer creates his masterpiece, he or she must strive to achieve as many new paradigms for the human-computer interaction as possible. The best way is to look at how most other applications accomplish a particular task, then *completely* re-think how one can accomplish this. Similarity to other products is an absolute "no-no" if the program is to be considered innovative. A side effect, it mentions, is that major differences in user interface between the new product and any existing similar products can prove useful should any legal "look-and-feel" contests arise.

The second section, which we will explore in a bit more detail next, provides some specific guidelines on how to create an application to "succeed in the nineties." As we will see, the document mentions tenets—such as hidden features, modality, changing semantics, installation, and easily-memorizable features—which have guided the Macintosh software industry for years in spite of the public objection of Apple and software critics.

Finally, the document ends (as does this encapsulation) in a few examples of creating a new program.

Specific Principles

Hidden Features

Though it might not appear so, the document suggests, hidden features are *extremely* important to the construction of a program which must be easily used by a large number of people with very little training. By *hiding* complicated features, the average user can perform minimal editing, saving, and printing of a document, without having to be confused with a plethora of options such as changing fonts in text, adding records to data bases, scaling and scrolling through graphics, and so on.

Modifier Keys: The original semantics of the modifier keys are now obsolete. Years ago, for instance, the shift key always *constrained* selections when manipulating objects. For instance, drawing with the shift key held down would constrain lines to 45° increments. *This is no longer applicable.* The best way for the shift key to function now is far more complex in today's more powerful programs. For instance, shift-clicking on the "OK" button in a typical modal dialog box might cause the answer to be chosen yet remain onscreen for future invocations of the same dialog.

Action Icons: The best-designed window is one which is covered with icon-buttons which are subtle enough not to be noticed to the untrained eye. A pleasing visual cue, such as a row of horizontal lines, a gray box to the side of the window, an asterisk (as in MacDrool II™) or even the shadow behind another object, is an excellent indicator that a useful program function is available.

Keyboard Commands: There is nothing worse than a program which cannot fully make use of the keyboard to accomplish useful tasks. How many times have you wished you could simply type Shift-control-command-option-spacebar to modify the radius of a circle from CAD program, or just type "MODIFY" and hit return when I want to change a value of a cell in a spreadsheet? The document from Apple claims that such abilities have been an important aspect of several Macintosh programs in the past, but that more programmers should strive to create such hidden options in their programs as well.

Modality

In the early days of more primitive Macintosh programs, a modal dialog box was presented to the user when a basic choice need to be dealt with immediately. For example, before quitting, the user would be given the chance to save a changed document first. For other purposes, selections would be made through the use of menus, palettes, and non-modal dialogs.

This paradigm is all well and good, but programs are much more complex and capable in the nineties. According to the document from Apple (with which I wholeheartedly agree), your programs *must* utilize as many modal dialog boxes as possible if they are to stand up among the greats of today such as Allthus PaperMaker™ and MicroSnot Verb™. Following are several suggestions for making dialog boxes work for you.

Nesting modal dialog boxes is one of the most important aspects of the new Macintosh interface paradigm. (See Macintosh Tech Note #31, "The Easy Path to Dialogs.") What this means is essentially that in order to simplify the choices for the user, a modal dialog must be invoked with a limited range of selections. In order to continue on to the program setting of choice, the user should be clearly presented with a button which will bring up the next dialog. And so on.

Nesting, of course, prevents the user from making unnecessary choices (as would happen if using menus or non-modal dialogs) or from actually performing some manipulation without first being led down the appropriate "path" to finding that setting. Remember, the more useful the button, the more buttons the user should have to push in order to find the desired button.

An additional benefit is that the comfortable garden-path approach of nested modal dialogs is that translation from your PC version of your program is much simpler than it would have been if you had taken the *passé* approach of completely redesigning a PC application for the Macintosh Environment. If it were not for the Mac's unfortunate tendency to promote non-standard (i.e., non-monospaced) fonts, the look and feel of Mac programs would appear much like PC programs. Fear not, though; some innovative programmers are blazing the trail by using monospaced fonts on their displays. By approaching the screen as in *SnuffIt! 1.5.1*, programming effort can be saved since fonts like Monaco and Courier line up so well when used in lists.

Changing of Semantics

The document from Apple devotes a large section to the issues of changing semantics—that is, simplifying the user interface of a program by having a particular visual cue or menu command behave one way under one circumstance, and in an entirely different way under another circumstance. Unfortunately, the section focuses on MultiMedia as fodder for its examples, a topic for which I have little to no understanding.

Installation

Installation—of programs and of program features—is one of my greatest pleasures in using a Macintosh, though it has so far been only a rare privilege. Fortunately, with the release of this document, other companies may catch up with the new paradigms being publicly revealed here for the first time.

The prime importance of installation is this: *the user must only be given the ability to use what he [or she] chooses to install.* Memorize this sentence, and use it daily. If only programs were as smart as MicroSnot PoorerPoint™ (version 1) and Verb™. In PoorerPoint™ (the version written before the Nazis invaded MicroSnot) you were not overwhelmed with menu choices for fonts and sizes like so many other programs tend to promote. Instead, you merely had to install the exact size and font you wanted into the menu bar, *then* choose the menu selection. Verb™, a gem for behaving differently for each version released, requires you to install—or even perform—commands from a scrolling list of a few hundred options. It only takes one or two hours to understand how it works. Truly a monument to the term "User-Friendly!"

Memorizable Commands

One of the most underrated features of great programs such as the aforementioned

MicroSnot Verb™ is the wide domain of easy-to-memorize keyboard commands you may use. Where else can you find command-Shift-E to invoke "Change Font" or command-option-M to invoke "Select Whole Document." The user of the program need memorize only a few hundred of these keyboard to become truly proficient in using the program. Apple, until the creation of this document, has always preached that people don't like to memorize commands and want to have every command laid out in front of them on a silver platter. This notion is, of course ridiculous, considering how many dozens of words in the English language that we have had to memorize in order to communicate effectively, how many dozens of faces and names we recognize in our day-to-day affairs, and how many dozens of bank account numbers, serial numbers, and zip codes we have all mentally accumulated through our years. Humans are born to memorize arbitrary labels; it's nice that Apple has finally admitted it.

Example session 1

Writing a Spreadsheet Program

Take a good look at the leading spreadsheets: UniPlan, Axel, WONGZ, and SwingSet, and pay close attention to how data are entered, manipulated, and modified. Now try to imagine a *different* way to approach the data. If you are able to perform a task without (1) creatively applying modifier keys while clicking on cryptic icons, (2) stacking up three or four modal dialogs (or hierarchical menus) on top of each other, or (3) invoking a dialog box, then striking several keys, then you probably have not passed the "innovation test."

Think about how the user will view and interact with the spreadsheet. Obviously, the user will wish to view and manipulate the entirity of the data. Of course, given the limitations of the Macintosh's screen size on all but the largest monitors, the user will not

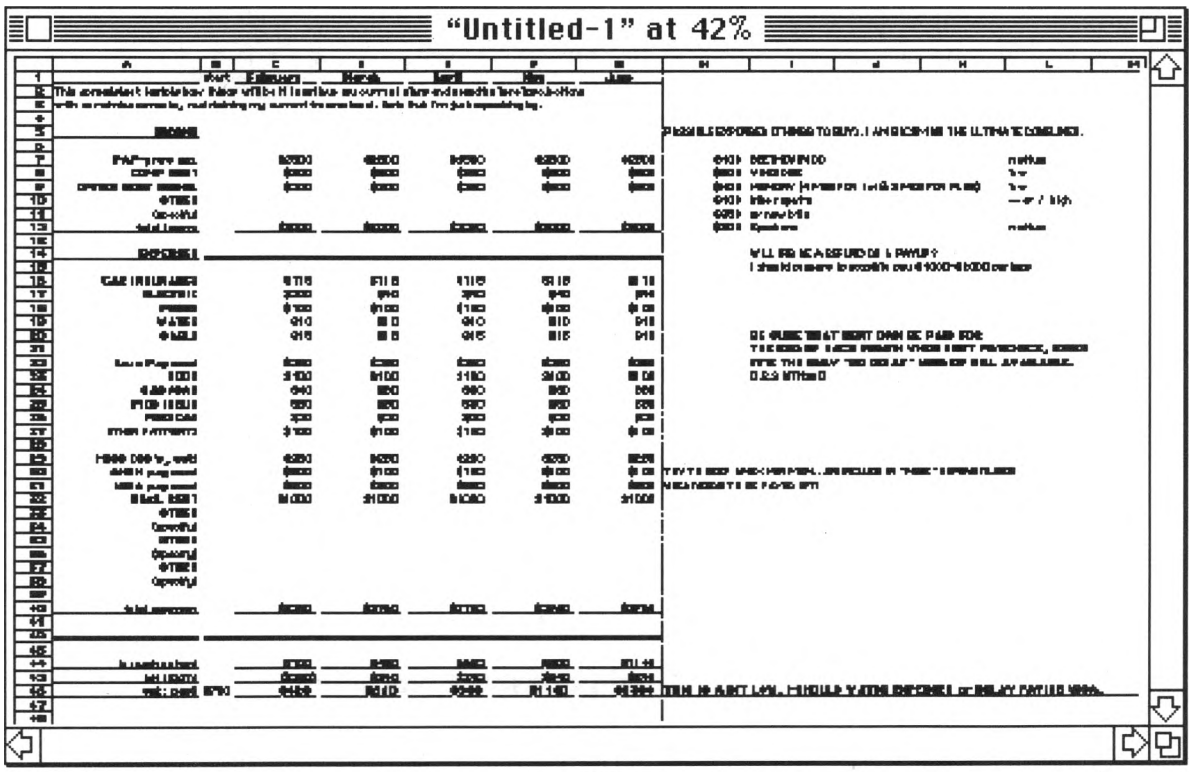

Figure 1

be able to see all of a large spreadsheet at once. Thus, it makes sense to only display a reduced view of the spreadsheet so the entire structure of rows and columns is visible at once (figure 1).

Since the user will need to see individual numbers as well as the overall view, we will need a way to view and edit the individual numbers. The most obvious way to deal with this is to simply option-shift-click on the part of the spreadsheet where you wish to find a number. The program could then bring up a dialog box as in figure 2.

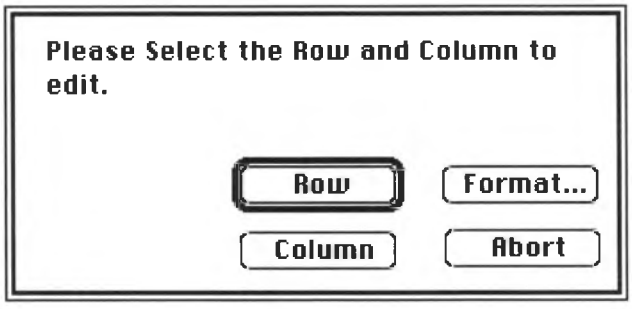

Figure 2

Upon clicking "Row," another dialog box would appear which allows the user to enter a row number (Figure 3). Of course, shift-clicking on the "Accept" button should automatically dismiss the "Row" dialog and bring up the Column Dialog.

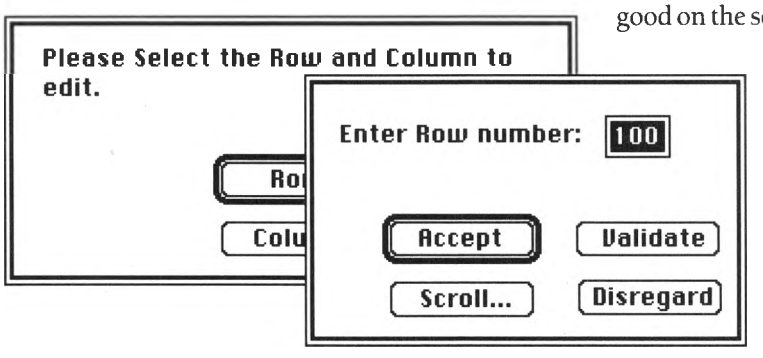

Figure 3

Once the Row and Column have been entered, a new dialog should appear with the contents of that cell. Editing is only a button press away (figure 4).

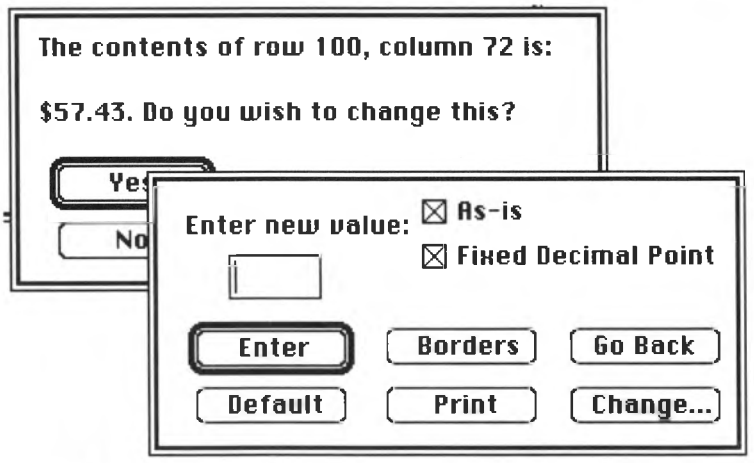

Figure 4

Example session 2

Writing a Word-Processing Program

Word-processing is a misunderstood form of application, because people *do* want "What You See Is What You Get" but they *don't want to type their document in that way*. Fortunately, with the pioneering Story Editor of PageMucker™, you don't have to. And you shouldn't have to see your document in those mixed fonts (which rarely look as good on the screen as they do on the LaserWronger printer) at all. This example shows the beginnings of a good, strong word-processing program.

First, let's concentrate on the WYSIWYG aspect of the project. Now, in order to truly see what we get, we must take advantage of the fact that your LaserWronger™ printer prints at 300 dots per inch resolution. Now for us to display anything less than that on the screen is against these important principles. Of course, it must be highly enlarged (figure 5)

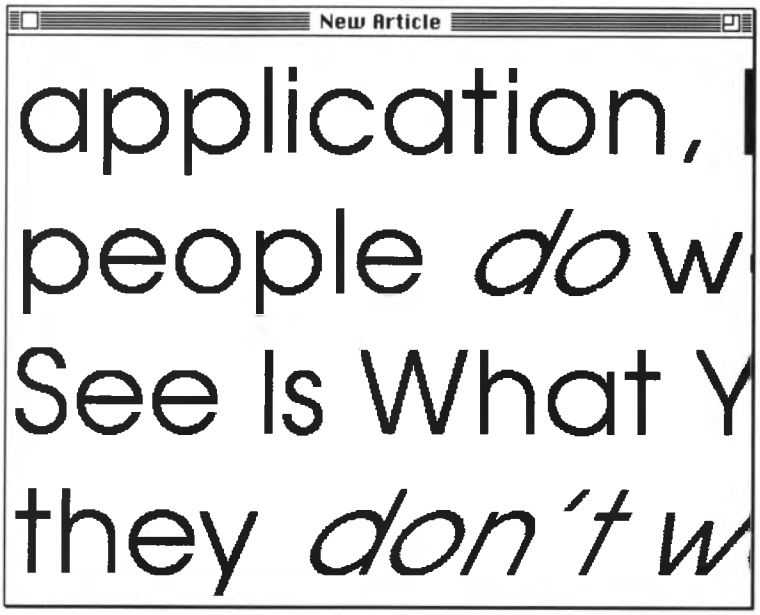

Figure 5

for use to be able to view the full resolution of the LaserWronger. Thus, we innovate with a separate windoid (figure 6) in order to scroll around within the document.

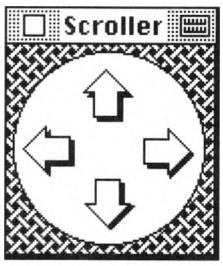

Figure 6

Now, viewing text so large is not too practical, since you cannot even read across an entire line without scrolling all the time. Thus, we use a modal dialog box to actually edit the contents of the document. Note that the font is all monospaced, to enhance readability and simplify our programming job (Figure 7).

Example Session 3

Writing a Compiler and Program Development System

Actually, not much was said in the document from Apple about building the ideal development system and compiler. Apple already has the ultimate, they say, called MPW. Its command-line interface and "Make files" are arguably the *ultimate* in innovative user interfaces. Why bother with anything else?

Dan Wood is a Macintosh user who, among other things, aspires to create innovative programs for a company like The Pharallon Computer Store.

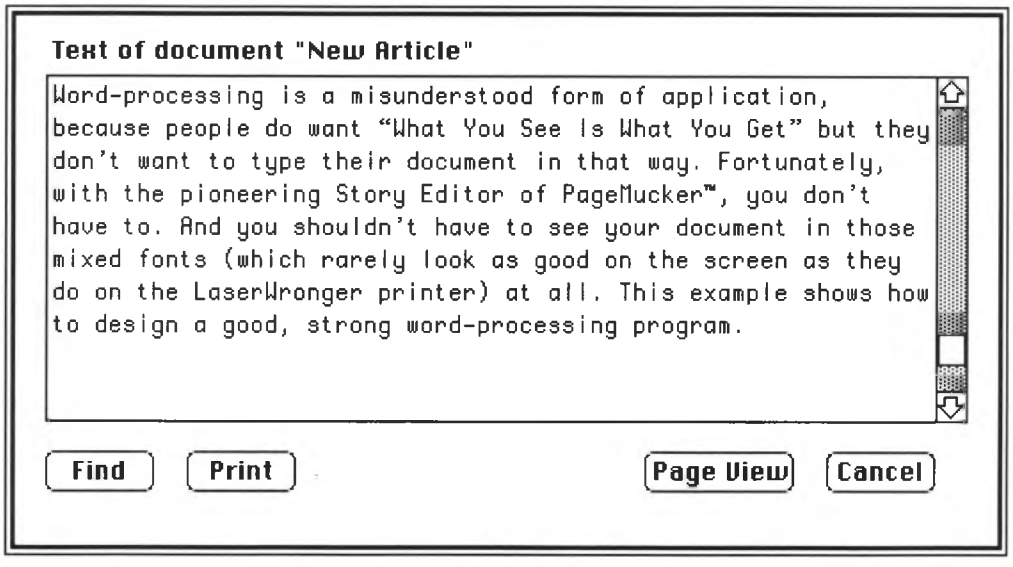
Text of document "New Article"
Word-processing is a misunderstood form of application, because people do want "What You See Is What You Get" but they don't want to type their document in that way. Fortunately, with the pioneering Story Editor of PageMucker™, you don't have to. And you shouldn't have to see your document in those mixed fonts (which rarely look as good on the screen as they do on the LaserWronger printer) at all. This example shows how to design a good, strong word-processing program.
Find
Print
Page View
Cancel

Figure 7

Moofing Dogcows!

by Greg Webb
University of Technology, Sydney

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On 15 September 1989, the following message appeared on the comp.sys.mac newsgroup of ACSnet. It was posted by Brian Kendig of Princeton University.

Msg #1: Brian Kendig, Princeton University

> Could someone please answer a few important technical questions for me:
>
> First of all, what exactly is a cowdog, and why do they say "Moof!"?
>
> Secondly: In the Macintosh Technical Notes Stack, there is a secret way you can access the hidden *Technical Note #31: The Dogcow*. It is *very* difficult to get to, and it is a real test of your skills as a HyperCard programmer to see it.
>
> I almost saw it. I got to the point where it should have brought up the TN, but due to what looks like a bug in the stack, it didn't. Can someone from Apple please clarify that this indeed should work?

Well! this message aroused my interest. Hidden technical note? Dogcow?? "Moof!"??? Wow, this guy has got to be kidding, I thought to myself. But no, he was serious.

Brian's message was the start of an intense discussion on the subject of Moofing Dogcows! which raged for several weeks and left me with fond memories for many months after. The discussion illustrates the richness of some dialogues on ACSnet which can have multiple threads or themes, provide genuine technical information and contain humour. Moofing Dogcows! is special because in addition to the those qualities, it is a complex puzzle as well and it shows the human side of the folk at Apple's Developer Technical Support in Cupertino.

The rest of this article is an edited version of the responses that were stimulated by Brian's enquiry. I have assembled the messages into a readable order, made minor enhancements to some messages and removed redundant and irrelevant passages from others, inserted clarifying statements (marked by braces {}), and added a glossary for the uninitiated.

So, here we go, *Moofing Dogcows!* First off the mark was Mark Johnson from Apple Computer.

Msg #2: Mark Johnson, Apple Computer Inc.

{In answer to Msg #1: '... what exactly is a cowdog, and why do they say "Moof!"?'.}

First of all, it's a dogcow {not, as Brian put it, a cowdog}, and they say Moof! (Apple legal would like them to say Moof (TM), but for brevity, we'll just say Moof!)

{With reference to Msg #1: 'In the Macintosh Technical Notes Stack, there is a secret way you can access the hidden *Technical Note #31: The Dogcow*'.}

The complete story behind the dogcow is in Technical Note #31, which no longer exists unless you have one of the original copies ... or unless you can read it in the Technical Notes Stack, version 3.1. To read it is NOT that difficult, but it requires the proper attitude and execution of a particular set of actions. Any mistake in this execution (or a sterile attitude) will result in Clarus (the name of the dogcow) refusing to appear at that time.

You need no skill as a HyperCard programmer to find the Note, as that takes all the fun out of it. If you are going to look for it that way, you might as well peek with ResEdit.

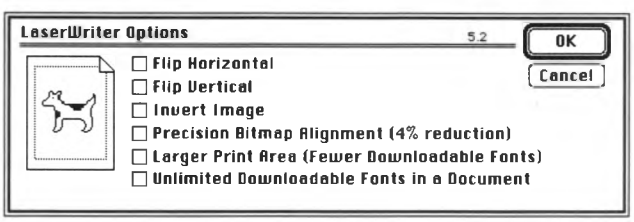
Msg #3: Michael Rose, Carnegie Mellon

This message is for anyone out there who doesn't know what the dogcow is.

Ever choose "Page Setup..." with a LaserWriter selected and click on the "Options" button? The strange looking animal you see on the page is known as the dogcow, because one can't tell if it's a dog or a cow. Were it to make a sound, the sound it would make would be "Moof!".

(Note #1: A friend of mine sampled someone saying "Foom", reversed it and made it a beep sound. Try it; it brings the whole thing a new perspective.)

(Note #2: According to Greg Decoteu [spelling may be off], an engineer with Apple Printing Group [and he should know], the beast is actually *called* a Moof, somewhat the way a young child refers to a cat as a "meow-meow".)



Clarus in the LaserWriter Options dialogue box

Msg #4: Johnson

{With reference to Msg #3: 'A friend of mine sampled someone saying "Foom", reversed it and made it a beep sound'.}

Actually, if you can find TN #31 in the Technical Notes Stack (version 3.1), you would have encountered an actual dogcow (Clarus) saying !fooM. Gee, wonder where that might be?

{With reference to Msg #3: 'According to ... the beast is actually *called* a Moof'.}

Sorry to disappoint you here, but dogcows are NOT called Moof. Moof! is the sound a dogcow makes. Make no mistake about it. Dogcows are called dogcows, unless you happen to know one, like Clarus in DTS.

Msg #5: Earle Horton

{With reference to Msg #4: '... if you can find TN #31 in the Technical Notes Stack (version 3.1)'.}

Yours truly found it, and it was not that hard. However, I must say that the choice of encryption algorithm was extremely clever. You will never get it from the script unless you are fluent in ebg13, so you might as well try to solve it the right way!

Msg #6: Lance Ellinghouse, Mark V Systems

Ok. How can I get to TN#31? I have tried *everything* I can figure out. I am not very good with HyperCard, so I am probably missing a lot.

Msg #7: Johnson

Everything? Maybe you are trying too hard. Think about dialogs which look suspicious. Think about ... never mind.

Msg #8: Kent Borg, Camex Inc.

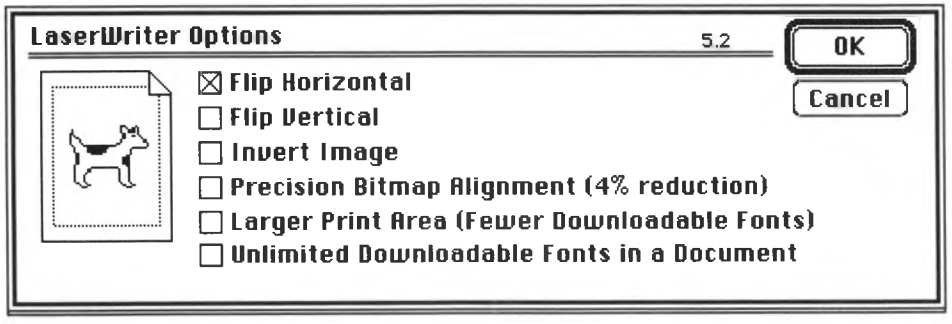
I found Technical Note #31, but I hadn't appreciated the great value in hearing the !fooM. I only thought it cute. When tried to

reproduce it again, it didn't work. !fooM is *very* important.

I even sent Mac The Knife a fax on how to find Clarus, but I left out the !fooM. He didn't find it — or he wasn't interested — and I didn't get a mug. Would have been fun to have my boss wonder how I got a MacWeek mug...

As for the encryption algolrythm {sic}, I didn't figure it out, I just got it itself to tell me what I needed to know.

Everybody out there! ... Go on a dogcow hunt! ... Right away!, before they all disappear from grazing off cliffs!



Clarus illustrating Flip Horizontal

Msg #9: Johnson

{With reference to Msg #8: 'I even sent Mac The Knife a fax on how to find Clarus'.}

Oh!, but this is heresy! Although we appreciate the GOOD press from MacLeak on "Phil & Dave's Excellent CD", etc., they should NOT get any special treatment on helping to find the dogcow. If one of the Mac the Knife reporters cares enough to look, he or she can spend the time like you or I. Never know what one might find ...

Msg #10: Allen Edmiston, Penn State University

Now wait a min ... if they go "moof!" then shouldn't they be called cowdogs? ;-)

Msg #11: Werner Uhrig, University of Texas

{With reference to Msg #10: 'Now wait a min ... if they go "moof!" then shouldn't they be called cowdogs?'.}

AMDA, the Austin Macintosh Dog–Cattlemen Association certainly thinks so ... (this really chaffs my Developer hide ... :-)

Msg #12: Kendig

{With reference to Msg #10: 'Now wait a min ... if they go "moof!" then shouldn't they be called cowdogs?'}

No, because they also go "!fooM".

It's perfectly logical, you see.

Msg #13: Larry Prince, UCLA

{With reference to Msg #10: 'Now wait a min ... if they go "moof!" then shouldn't they be called cowdogs?', and Msg #12: 'No, because they also go "!fooM". It's perfectly logical, you see'.}

Not really ... they should obviously be called godwocs.

Msg #14: Tim Smith, unknown affiliation

Is the Technical Note #31 in the stack any different from the one that was mailed in one of the developer mailings? Is that soon to be a collectors item? Should I find my copy and place it in a mylar bag backed with acid free cardboard?

Msg #15: Johnson

{In answer to Msg #14.}

If you've got one of the "original" paper copies, hang on to it. The Technical Note in the stack is there to share the story with a wider audience; however, these people cannot reproduce the same printed copy you have. Collector's item? Only you can make that decision.

Msg #16: Lloyd Lim, unknown affiliation

What I'm curious about is how you got the stack to tell you the key phrase. Would you mind telling me how you stumbled across this unique phrase?

Msg #17: Johnson

{In answer to Msg #16: 'What I'm curious about is how you got the stack to tell you the key phrase?'.}

You did NOT miss anything. You cannot figure out the important stuff from the stack without sniffing around with a little advance knowledge. If, however, you already know a great deal about dogcows, it should have been a fairly trivial exercise.

Msg #18: Alex Chaffee, Reed College

{With reference to Msg #17: 'You cannot figure out the important stuff from the stack without sniffing around with a little advance knowledge'.}

But ... but I wanted to LEARN about dogcows from the Technical Note ... Maybe it should have been numbered (catch) 22 ...

Msg #19: Richard Ewing, Apple Computer Inc.

First of all, the name of the beast is the dogcow. Not the cowdog. Not the weird little doggie-in-the-window [sic]. Just the dogcow. No more, no less.

Second of all, the dogcow goes Moof!, and occasionally goes !fooM. It hasn't been known to say much else.

Thirdly, if we're going to use this expression, it should be "Moofin' Dogcows!", not "Moofing Dogcows!". A little respect to Lil' Orphan Annie must be considered.

Msg #20: Johnson

{With reference to Msg #19: 'Thirdly, if we're going to use this expression, it should be "Moofin' Dogcows!", not "Moofing Dogcows!". A little respect to Lil' Orphan Annie must be considered'.}

Correction here please. As a representative from DTS, it must be pointed out that one should NOT use phrases like "Moofing Dogcows!" and especially NOT like "Moofin' Dogcows!". A dogcow goes Moof! Any other use of the terms is disrespectful ... didn't you read Miss Manners?

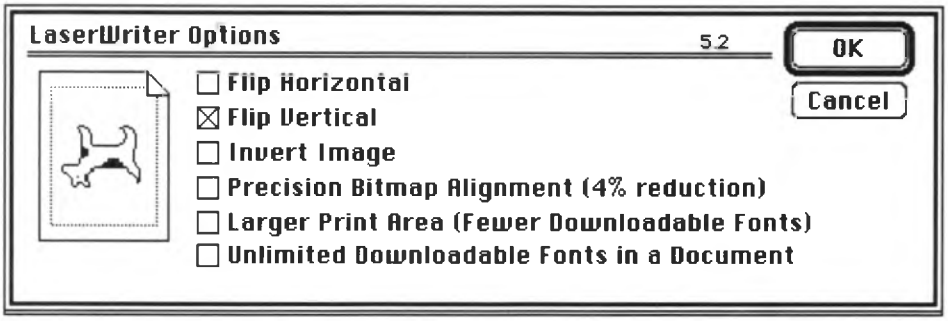
I must also point out that for the sake of Apple Legal, it really is proper to say Moof (TM) as we did (really, look it up) trademark it. We're serious about our dogcows.

Msg #21: Ralph Brandi, AT&T Bell Labs

{With reference to Msg #20: 'I must also point out that for the sake of Apple Legal, it really is proper to say Moof (TM) as we did (really, look it up) trademark it. We're serious about our dogcows'.}

You guys are sick pupcalves ...

Did you trademark it with the exclamation point, or without? (In other words, is it Moof! (TM), or Moof (TM)!?)



Clarus illustrating Flip Vertical

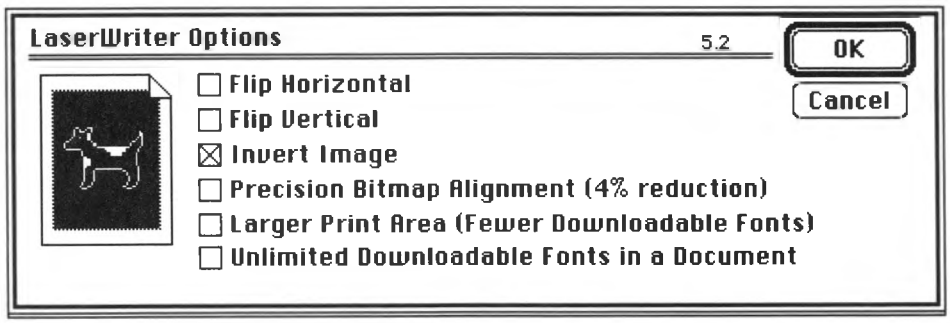
Msg #22: Larry Prince, UCLA

{With reference to Msg #21: 'You guys are sick pupcalves ...'.}

Hey folks ... let's stop hounding them ... we've milked this subject long enough :=>

Msg #23: Roy Smith, Public Health Research, (NY)

I've been following this thread for a while (or at least trying to) but I still haven't been able to figure out what you guys are talking about. Just what *is* a Moof(TM)ing! Dogcow?



Clarus illustrating Invert Image

Msg #24: Johnson

{In answer to Msg #23: 'Just what *is* a Moof(TM)ing! Dogcow?'.}

There is NO such beast as a "Moofing! Dogcow". However, for details and living history of the dogcow (which goes Moof!), refer to Macintosh Technical Note #31. (And please don't ask how you can find a copy.)

Msg #25: Ted Johnson, Ye Olde Salt Mines {Utah?}

What is the origin of all this dogcow stuff?

Msg #26: Johnson

{In answer to Msg #25: 'What is the origin of all this dogcow stuff?'}

The origin is quite graphically documented in Technical Note #31. Prior to this documentation, there was nothing explaining the appearance of this animal in the Page Setup Options dialog box.

Msg #27: Harry Saal, Network General Corp

I figured out all the clues, but I think a revised edition is in order. I am using the CD Technical Note Stack version, and on my Radius TPD, page 1 of TN #31 has the right hand edge cut off. pp 2 and 3 are better visually. But all three don't print correctly on my LW NTX; they are split into multiple pages. Do dogcows try so hard to hide their very presence I can't get a decent printout?

Msg #28: Johnson

{In answer to Msg #27: '... On my Radius TPD, page 1 of TN #31 has the right hand edge cut off'.}

If somebody wants to send me a Radius TPD I would be more than happy to fix page 1. As for printing, you will not get a decent printed copy unless you got an original or a photocopy — this was, and remains, the intent. The files are PICTs, so you can manipulate them if you really want a printed copy ...

Msg #29: Walter C3arlip, University of Chicago

For those of you having trouble finding the dogcow in the Technical Notes Stack, make sure you have at least Version 3.1. I spent quite a while trying to find it in Version 3.0 — in which none of the posted clues made any sense.

Also, be forewarned that even if you do find Technical Note #31 that it does contain errors. In particular, it says "The dogcow's name is Clarus for the same reason you call a table a 'table'". This is obviously not true. The dogcow is *obviously* called Clarus for the same reason that the dogstar is called Sirius. I hope that this oversight is corrected in the next version of the stack.

PS: (the "3" in C3arlip is silent)

Msg #30: Owen Hartnett, Brown University

Also, another problem may occur if you're using ApplicationMenu. Certain portions of

the Observe Dogcow Sequence require the use of Option and Shift held together, which the default ApplicationMenu will override to display a popup menu of applications.

I mention this only because there may be some people out there whose very sanity only hinges on being able to see the dogcow in the Technical Notes Stack. Since our asylums are full to overflowing now, this information may somewhat ease that congestion.

Msg #31: Ian Dobson, University of Melbourne

Ok, I've finally managed to unlock the puzzle of the dogcow and have managed to get a decent printout by pulling the PICTs into MacDraw. But I've still got this "Technical Note #31, Technical Notes Stack Version" junk written all over the screen. Is there an actual MacWrite version of the Technical Note out there that anybody has? Or does some old version of the stack have the Note without the junk?

Msg #32: Johnson

{With reference to Msg #31: '... But I've still got this "Technical Note #31, Technical Notes Stack Version" junk written all over the screen'.}

Sorry, the "junk" was put there intentionally. It was either release an electronic version of the Note with the junk or don't release an electronic version of the Note. We decided upon the former. There are no other disk versions of this Note available outside of Apple (or inside Apple for that matter). If you want an original printed copy, you should either check with APDA, con a Partner or Associate out of a photocopy, or send cash donations to the author, Mark Harlan, care of MacDTS. :-)

Msg #33: Steve Kearn, Columbia University

Just a warning.

I was intrigued by all the PuppyCalf postings; fortunately I knew someone at a company who had a paper copy of Technical Note #31.

The bottom line is IT IS PRETTY STUPID. If you haven't seen it, you haven't missed anything. It is the type of essay that 3rd graders write about their imaginary playmates — making up facts about the PuppyCalf, and where it came from, and how it behaves, etc. If you like watching StarTrek reruns for the 20th time, you might enjoy this.

— disappointed

Msg #34: Johnson

{In answer to Msg #33: 'The bottom line is IT IS PRETTY STUPID'.}

Gee, I'm sorry you didn't like it. If you feel strongly about this, you can voice your displeasure directly to the author, Mark Harlan, by writing to the address listed in Technical Note #0. I'm sure he would appreciate hearing from you.

Msg #35: Joe Houghtaling, University of Albany

I'm hoping someone out there can help me on this one. I was looking at a friend's copy of Macintosh Technical Note #31 (*The Dogcow*) from his Technical Notes Stack (version 3.1) and in the course of poking around in the stack script, managed somehow to mung it up. Tried everything I could. Needless to say my friend is a tad upset. Would some kind soul please supply me the correct text of the following routine from the stack script:

```
on goEnvsm
...
end goEnvsm
```

I'd _really_ appreciate some help on this. My friend has been really tolerant about losing access to the Dogcow TN. ("Oh, I've read it a few times already") but he spent 12 hours downloading it {the stack is 2 Mbytes long in Binhex/StuffIt format, and 2.8 Mbytes

as a normal stack}. I know if I were he, I'd boil me in oil.

Again, thanks.

Msg #36: Joe Giannuzzi, The Cooper Union (NY)

Since it seems that everybody is through beating a dead dogcow, allow me to ask a silly question. The dogcow is the topic of the 'unused' TN #31. Is there a TN #49, the other unused note, hidden somewhere in the stack? Does a TN #49 exist in any form? Just curious.

Msg #37: Johnson

{In answer to Msg #36: 'Is there a TN #49, the other unused note, hidden somewhere in the stack?'.}

No comment.

And on that comment, I will let sleeping dogcows lie.

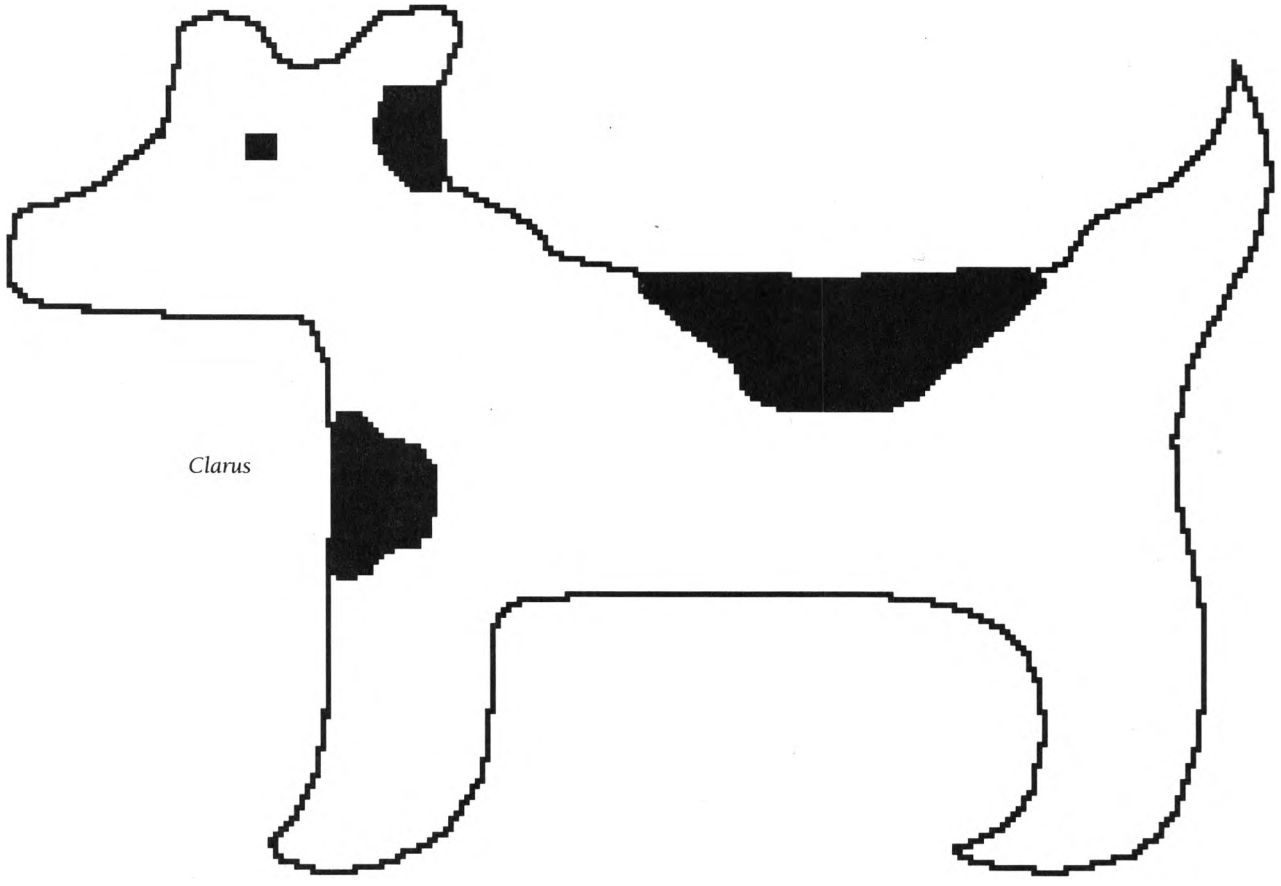
If you do want to try to solve the puzzle, then good luck. There are two ways to do it: the hackers way, and the right way. The hackers way requires the use of some hackers' tools. The right way requires no special tools, only a proper attitude and a resolve. Warning: this problem is not for the casual game player, or for those that have assignments due.

For those that can't resist a challenge, this article contains lots of clues to solving the problem the right way.

The Technical Notes Stack is available from the your local public domain library or bulletin board. If you are on AARNet, you can get a copy from the Info-Mac shadow archive at ditmela.

Until next time, Moof!

Glossary of terms used in this article follows on next page.—Ed.



Clarus

Glossary

:-) . . . . . Smiley. Used to suggest that what has just been said was in jest. If you can't see the smiley, tilt your head to the left.

:=> . . . . . Another smiley. Substitute for :-)

;-) . . . . . Winking smiley.

very . . . Enclosing words between asterisks (or underscores) is a method of emphasising a word in electronic communications where there is no bold or italic formatting. Hence, *very* would normally be written as **very** or *very*.

really . . See *very*.

APDA . . . . The Apple Program Developers Association. APDA is the source for developers tools produced by Apple and they also distribute the Technical Notes.

Binhex . . . A format for representing binary information as ASCII characters. Used for transmitting binary files over telephone networks which would normally mangle binary information. Files to be transmitted are usually compressed into a format such as StuffIt before being changed to Binhex format.

CD Technical Note Stack The Technical Note stack on compact disk.

Cowdog . . There is no such thing. A typographical error of Dogcow.

DTS . . . . . Apple's Developer Technical Support is the section that looks after Apple developers, and publishes the Technical Notes.

Lil' Orphan Annie See Technical Note #31.

LW NTX . The Apple LaserWriter NTX laser printer.

Mac The Knife A column in MacWeek.

MacDraw . A Macintosh graphics program.

MacLeak . A reference to MacWeek. The reference is derived from the fact that MacWeek publishes accurate details about Apple's plans long before anyone else. As one Apple employee confided in me, 'we find out about new product announcements from MacWeek long before management tell us anything'.

MacWeek . US weekly magazine devoted to Macintosh news.

Megabyte . One million (1,000,000) characters.

Miss Manners See Technical Note #31.

Phil & Dave's Excellent CD A compact disk containing heaps of developer information and software. 'Phil & Dave's Excellent CD' is the development name for the CD which will probably change when it goes into production.

PICT . . . . A Macintosh file format for graphics.

Radius TPD This an A3 monitor made by Radius, originally for the Macintosh II, and now made for all Macintosh computers except the Mac Plus.

StuffIt . . . . A format for compressing files before transmitting them. A compressed file takes less time to send or receive and therefore costs less in communication charges.

Technical Note A notice put out by Apple Computer for software developers describing new and updated features of the Macintosh operating system. Very technical; definitely not for the average user. The Technical Notes are published as a series called *Macintosh Technical Notes*, and updates appear nearly every month.

Technical Notes Stack A HyperCard stack containing the Macintosh Technical Notes.

Thread . . . A term used to mean a sub-story, or sub-plot, running through the discussion. Discussions can have multiple threads.

TM . . . . . Trademark.

TN . . . . . Abbreviation for Technical Note.

Networking/Communications

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A Simple Procedure for Downloading from BMUG's BBS

(Rev 6/1/90)

by Jerry Raddatz and Manny Roizen

If you've ever logged onto the BMUG BBS and then wondered how to transfer any of its wealth of files, data, etc. to your computer, the following procedure will show you the easy, practically foolproof way to download whatever you will.

Downloading means to transfer a file from the BBS to your computer.

We logged on to the BMUG BBS with *ZTerm, vers 0.85.*

ZTerm, vers 0.85 available on the BMUG Membership Disk and also on BMUG Telecom 5 disk.

BMUG BBS Shortcut Commands

P = to pause output of BMUG BBS and catch up. Then press any key to resume
H = to get Help
S = to stop output and get to end of the list or the next menu
B = to back-up

To activate any command instantly (e.g. Library) type the letter inside the angle brackets < (letter)>without pressing Return (e.g.,<L>). To go to the next Prompt, type > or 1.

Getting Around the BBS

Prompts are lists of commands that appear in different areas of BMUG BBS from which you choose.

Note: BMUG BBS is case-sensitive to your Password.

1. Prompt: press any key to start after logging on, e.g., type the letter L.
2. Prompt: from *Combined* to *Command*: type L (for Library). Then from the list of BBS category sections (fromO: Name files to Shift-9: Utilities), select and type the number or Shift-number for the library section wanted. Be sure to wait for the list to stop before making your choice
3. From the list of files in the section you selected, highlight the name of whatever you want to download.
4. Select **Copy** (from the **Edit** menu).
5. When BBS Prompts (from <D>ownload to exit) appear, type P (for Protocol). Press Return.
6. When the Transfer Protocols list appears (from 1-TYPE to Super KERMIT), type the number of the Protocol you are using, e.g., 6 for YModem/YModem Batch.
7. When the next BBS prompts appear (from <D>ownload to exit), type D (for Download), then press Return.
8. The BBS will ask for the File Name you selected. Select **Paste** (from the Edit Menu) and the File Name will appear. Press Return.
9. BMUG BBS will ask Awaiting Start Signal. Select **Receive YModem** (from the File Menu).
10. The *ZTerm* progress window will appear..
11. ZTerm BBS will then, from Protocol= YModem to bps (bytes per second), notify you that it is downloading, showing the information about your selection and the downloading time. It will beep when downloading is complete.
12. (Congratulations from us)! Confidently press Return. Then select **Hang Up** (from the **Phone Menu**), and click **Quit** (from the **File Menu**). You are now logged off.

Now aren't you glad and proud to be a member of BMUG ?

Up and Down the BMUG BBS

by Bernard Aboba, Phil Reese, Raines Cohen, and Leonard Rosenthol

BMUG's electronic Bulletin Board System, or BBS, is now an eight line system, running 22 hours a day, seven days a week. A look at the current user log discloses over 7,000 registered users, logging over 9,000 calls a month. With all of those people using the BBS, it's about time that someone sat down and wrote an introduction suitable for all users. Well, wait no further! This is it.

In The Beginning, There Was Modem

To use your computer to communicate with other computers, you need a special device called a modem. This originally stood for something, and almost every beginner's telecommunications article I've read takes a couple of paragraphs at this point to give you the history of **why** it is called a modem. My opinion is that most people could care less about the habits of hacker-nerds in computing prehistory, so we'll skip it this time, OK?

Of course, not just any modem will do. Most Macintosh terminal programs and newsletter articles operate on the assumption that you are using a Hayes-compatible modem of some kind. Again, don't worry about what this means; just walk down to your corner store such as M.A.C. in downtown Berkeley, and pick up a modem that is guaranteed to be 100% Hayes-compatible such as the Supra 2400 (and refuse to buy it if they won't give you a refund if it turns out not to be). We like Supra 2400 modems because we use five of them on BMUG BBS, and they've been in use 24 hours a day for almost six months now. If you only using a modem occasionally, and can live with less than 100% Hayes compatibility and reliability, the SUPRA 2400 modem is the one for you. In normal use, these modems should last long enough for 9600 baud v.32/v.42 modems to become affordable. If you communicate with another 2400 modem that supports MNP-5, you should probably spring for this model — you'll notice the increase in throughput.

For those with the wherewithal, the USR HST/Dual Standard is the Mercedes Benz of modems. If you can afford one, buy it, and don't ever worry about modems again. Current price is around $1000. A combination of state of the art throughput (up to 38.4 kbps in some applications), v.32/v.42 compatibility, and compatibility with the large majority of BBS's make the Dual Standard HST/v.32/v.42 the ultimate modem, and USR service can't be beat either. If you don't need v.32/v.42 compatibility, try the HST 14.4, or if you're strapped for cash, you can probably pick up an old HST 9600 used for around $300. It's a little known secret, but USR does sell reconditioned HST's for bargain basement prices, although there's a long waiting list. Be aware though, of high failure rates on HST power supplies on the old models.

Get a cable at the same time you buy your modem, so when it doesn't work the modem dealer can't blame your troubles on the cable and vice versa; it should cost you maybe $15 extra.

You get some choice in the matter: speed freaks can pick up a "9600 baud v.32/v.42/V.42" model for $450 or less, from vendors such as Practical Peripherals, or a reconditioned HST model from USR for even less. If you have one of these nifty items, you can call the BBS on the high speed line at (415) 849-1795, and download at four times the speed. Remember that if you're buying a 9600 baud modem or faster, you need a special "hardware handshake" cable for use with your Mac, and you should turn on the RTS/CTS or "hardware handshake" settings in your terminal program. This cable won't work if you've got a Mac Classic, so just buy a regular cable in that case, and ignore this paragraph.

US Robotics, Dual Standard HST/v.32/v.42/V.42

800/DIAL-USR

SUPRA 2400 with MNP

SUPRA
8100 McCormick Blvd.
Skokie, IL 60676

800/397-0924

Then Came Terminal Program

You'll need some software, too, to make your modem do anything. You need something called a **terminal program**, to make your Macintosh imitate the computer terminals of the last decade, so that it can communicate with our PC, which is running special software to make it imitate a mainframe computer which can only communicate with terminals. Kinda like a costume party, huh?

ZTERM is available from BMUG (Telecom 5), or can be gotten directly from the author by contacting:

Dave Alverson

5635 Cross Creek Court

Mason, OH 45040

If you don't have a simple program like *ZTERM* around, you can pick it up from BMUG. ZTERM is Mac software like it used to be — simple, and performing like a bat out of hell. For novice users looking for a reasonably priced telecommunications program, ZTERM simply cannot be beat. It's hard to select the wrong options or make a mistake; menus are sensibly arranged and don't proliferate like a bad dream like in some **other** telecommunications software. Shareware price is $30 for registration only; $40 with disk.

If you're looking for scripting, or other advanced features, you should purchase a commercial program such as *MicroPhone*, *or White Knight*. The communications portion of *Microsoft Works* will do the job, too. Most of these programs have much more than you'll need, and they offer varying degrees of integration, convenience, automation, and ease-of-use. This article isn't the appropriate place for a detailed comparison, so all we can say is **buy them all**.

For more information on these services, contact:

Galaxy Telecom Corporation
2625 Pennsylvania NE
Albuquerque, New Mexico 87110

515/881-6988, FAX: 505/881-2756

All of the programs I've listed, as well as many that I've omitted, include a feature called **XModem MacBinary** or something like that. This feature is essential for transferring Macintosh files to and from our BBS and most other systems, as you'll rapidly discover once you try. I wouldn't even bother using a program that didn't have XMODEM MacBinary. Programs like *ZTERM* or *MicroPhone* also will have protocols such as XMODEM 1K, and YMODEM-batch. These protocols will save you time and money over vanilla XMODEM, so they are to be preferred.

Then Came the Phone Bill

Next, you better figure out a way to call the BMUG BBS cheaply, so you can pay your rent. There are several strategies for this. If you live in the Bay Area, then probably the cheapest way out is to call Pac Bell, and get Custom Calling service to Berkeley. For around $15 per month you get a hefty discount on calls to the 849 prefix, plus a certain number of free calls. You can still run up a bill in the three figures if you're a BBS addict, but you'll save a bundle.

If you're out of the area, or out of state, you'll need another strategy. Galaxy Telecom Corporation has several different services that can lessen the afterbite of telecommunications. They are called Starlink and Connect USA. Starlink is a 2400 bps service, while Connect USA can go up to 9600 bps. Signup fees for Connect USA are $35, plus $10 monthly maintenance, plus $3/hour. For Starlink, signup is $25, plus $10 monthly maintenance, plus $1.50 per hour.

Since Connect USA is relatively new, there are hardly any systems connected yet, but it's worth keeping an eye on. For $3 an hour for 9600 baud access, when enough systems become accessible, Connect USA will become the access service of choice for passionate telecommunicators.

A Word About Archiving Software

Archivers greatly reduce download/upload time, letting you transfer more files in the same amount of time. They also allow more files to be stored on the BBS. They work by finding and eliminating repeated progressions of data, which shrinks the file by a few percent or sometimes more than 80%. (It works expecially well on text.) When an archive is de-archived, these progressions are restored. Different archivers use a variety of encryption techniques. However, all archivers are generally very reliable as far as maintaining data integrity.

Almost all files on the BMUG BBS are archived. Since this means that you'll need the appropriate de-archiving software to restore a file after you download it, archive software is provided in the BBS Library (in New Uploads). You'll need to download the appropriate archive software, but only once, and then you'll have it any time you download another file archived in that format.

But how do you know which archive software will properly decompress the file? That's usually indicated by the filename extension:

- .sit = Stuffit, Stuffit Classic, Stuffit Deluxe
- .cpt = Compactor
- .pit = Packit (outdated and no longer used, but these archives still exist)

Thus, ICONEDIT.PIT requires Packit to decompress it.

All of these utilities create and extract archives. Stuffit has been the standard file compression utility for a long time, so you'll see a lot of .sit files on the BBS. Compactor has come along quite recently as of this writing (November 1990). Stuffit Deluxe is the new commercial big brother to Stuffit, and it also has a new shareware cousin Stuffit Classic.

While all archivers can decompress their own archives, there are also de-archivers for most archive formats. Archivers are generally shareware, and de-archivers are freeware. Therefore, if you only want to decompress files you've downloaded and don't want to pay the shareware fee for the archiver, you can use the free de-archiver instead. Naturally, these free archivers are also posted in `New Uploads`:

- UnStuffit Deluxe 1.1 - for Stuffit, Stuffit Classic, and Stuffit Deluxe (not Compactor)
- UnStuffit DA - UnStuffit in a DA! For Stuffit only (not Classic/Deluxe)
- Extractor - for Compactor, and Stuffit (not Classic/Deluxe)

Remember that if you use one of the other products to compress files, then you are required to pay the shareware fee that the author requests. This is how shareware works, you try it and if you use it, you pay for it.

There is also a format converter, SITtoCPT, which (obviously) converts .sit (the older Stuffit) archives into .cpt archives. Why would you want to do that?

Compactor creates and decompresses archives much faster than Stuffit, and in many cases Compactor archives are much smaller than Stuffit archives. Remember, however, that other BBS's may not except Compactor archives. SITtoCPT is freeware.

Stuffit Classic (1.6) is the update for Stuffit 1.5.1. It creates Stuffit Deluxe archives by default, which it can also decompress; optionally, it archives in Stuffit 1.5.1 format. It decompresses all Stuffit archives.

Since the size of Stuffit Classic, even when archived, exceeded the daily download limit, the archive had to be split into two parts that could be downloaded on consecutive days and joined with Stuffit 1.5.1. (Creating split archives is a standard feature of all versions of Stuffit.)

- Stuffit Deluxe archives can be decompressed with Stuffit Classic or UnStuffit Deluxe, but not with Stuffit 1.5.1.
- UnStuffit Deluxe 1.1 is the update for UnStuffit 1.5.
- Compactor decompresses only Stuffit 1.5.1 archives.
- Compactor and Extractor require Mac Plus and up, while Stuffit, Stuffit Classic and Unstuffit Deluxe run on a Mac512K and up.

The World According to Modem

Macintosh users should be warned that communications software is still way behind most other Macintosh software, in terms of ease-of-use and interface. With a few exceptions, it still looks like it did on text-oriented PC's ten years ago. So prepare yourself for a dose of techno-babble and leave your mouse behind - you'll hardly need it, since you'll be using the keyboard almost exclusively once you connect.

If you're practicing, we'd recommend **capturing** your session on the BBS so you can look at what happened afterwards and study it. In some programs, like MicroPhone

or ZTERM, this is automatic, but you've got to tell some programs to "Capture incoming data to text file," or "Receive Text File" (sometimes called ASCII) or some incantation like that.

See your program's documentation to find out how.

To use the BMUG BBS, you should configure your terminal settings to support:

```
8 data bits — 1 stop bit — no parity —
full duplex — the appropriate baud rate
for your modem
```

These are the settings to use whenever you call the BMUG BBS. Please note that for most programs, and most Bulletin Board Systems, *these are the standard settings*, so you might not need to change anything at all.

Verify that your modem is connected to the computer and phone line, and is turned on. Now dial the BBS's phone number. Usually, you can ignore all the babble about "dial" commands and just type this:

ATDT 849-2684 or **ATDT 1, 415-849-2684**

After a bit, the BBS's modem should answer and you will be greeted with a few screens of information. If this is your first time on, you should read ALL the suggestions included. Sometimes you may receive a busy signal. This indicates that all the incoming lines to the BBS are full. Try to call back in a half hour or set your terminal program to automatically redial and sit back and read a comic book until you get through. (See Endnote 1 for the most common questions, not to mention answers, about the BBS.)

Logging on

Finally, you make it onto the board. If this is your first call, the BBS will pester you with quite a few questions, which may seem irrelevant. They are, but we can't remove them, with the current software we're using. Here's a sample first log on session, with what the computer types `in this font`, and what you type **`in this font`**...

```
CONNECT 2400
Congratulations! You made it to the.......
        >> B M U G B B S ! ! <<
   a member service of BMUG, Inc. Now
              running TBBS.
[ many lines of welcome message here have
been omitted for the sake of brevity.]
First Name? JOE
Last Name? MACUSER
Calling from (City, State)? Berkeley, CA
TBBS Welcomes JOE MACUSER
Calling From BERKELEY, CA
Is this correct? y
Terminal Width (10-132)? 80
<A>Standard <B>VT-52 <C>VT-100
Enter letter of your terminal, <CR> if not
listed: C
Upper/Lower Case
Line Feeds Needed
00 Nulls after each <CR>
Do you wish to modify this? N
Do you wish to have a pause after each
display page (Y/N)? N
Please Enter a 1-8 character Password to
be used for future logons. This password
may have any printable characters you
wish. Lower case is considered different
from upper case and imbedded blanks are
legal. REMEMBER THIS PASSWORD. You will
need it to log on again.
Your password? secret
```

Don't give your password to **anyone**, and ignore any messages asking you for it once you're logged in. It is what identifies you uniquely to the system, and somebody else with your name and password could use your account, using up your daily time allocation and otherwise sullying your reputation.

We **don't** recommend using the same password on different systems; if you do, and someone discovers your password on **any** system, your account on another systems could be broken into.

```
You have read through message 0
Current last message is 5119
```

```
You are caller number 25866
Welcome to the BMUG BBS!
```

[Here, as anywhere the BBS is spewing words at you faster than you can read them, you can use the following commands: Type **P** to pause output and catch-up (press any key to resume). Type **S** to stop output and get to the end of the list or the next menu.]

The Main Menu

We've tried to make up for the PC-ishness of text-based BBS's by making the BMUG BBS as Macintosh-like as we can. The system consists of a series of **menus**, which have a structure similar to that of Macintosh applications. The top of every menu includes some common commands, kind of like the Apple **File** and **Edit** menus in Macintosh applications. The commands let you get to the general areas of the BBS: Messages, Library, Information, Conference, Groups, and Options, as well as letting you **undo** your last step (with the "<B>ack up" command), and Quit. The name of the menu you're looking at appears in the upper right corner of the top part of the menu.

```
:::::BMUG BULLETIN BOARD SYSTEM:::::
:::::::MESSAGE AREA 0 - COMBINED:::::::
:<M>sgs <L>ibrary <I>nfo <C>onference
<G>roups <O>ptions <B>ack up <Q>uit:
::::::::::::::::::::::::::::::::::::::::
```

The rest of the menu changes, with different commands available in the different areas of the BBS. The common top part of the menu is followed by a short description of the menu, and perhaps some additional instructions, like this:

```
BMUG BBS combined message area. Type a # to see messages in just one message area, or A for a list of he areas. You can <D>efine which areas show up in your "combined" read. Anytime, press H for help. Enjoy the BMUG BBS!
```

The very bottom part of the menu includes a list of the commands specific to this menu. Here's what this looks like on the main menu:

```
COMBINED: <S>can <R>ead <P>ost msgs
<D>efine <A>rea list or #,<,or >,<H>elp?
```

Last but not least, when you first call the BBS, you'll see this line at the bottom of every menu:

```
UNVALIDATED: Type <V>alidate anytime to gain full use of the BBS.
```

Let's look at how to get you validated so you can take full advantage of the BBS and avoid having this pesky line show up on all of your menus. Here's how to get validated, from any menu:

```
Command: v
:::::BMUG BULLETIN BOARD SYSTEM:::::
::::::::::VALIDATION AREA::::::::::
:<M>sgs <L>ibrary <I>nfo <C>onference
<G>roups <O>ptions <B>ack up <Q>uit:
::::::::::::::::::::::::::::::::::::::::
<1> I'm a BMUG member, validate me!
<2> I'm not a BMUG member, send me membership info.
<3> Complain to the SYSOP about some problem with the above.
To return to where you were, use the <B>ack up command.
Command: 1
Welcome to the BMUG BBS Validation survey. I'll ask you a few questions, and if your answers are appropriate, and your BMUG membership is current, your account should have full access to the BBS within 24 hours. If you're not a BMUG member, just answer "No" to this next question, and then use item #1, "Send me information" on BMUG, to find out how to join.
Are you a BMUG Member? (Y/N) Y
What name did you use when joining BMUG?
Joe MacUser
```

```
What is your mailing address (street
address?) 1442A Walnut #62
City, State, Zip? Berkeley, CA 94709
What's your phone number? 415-849-2864
Joe MacUser
1442A Walnut #62
Berkeley, CA 94709
415-849-2864
Is all this correct? y
Thanks for answering these questions...
check back in 24 hours or so to see if your
validation was successful. In the mean-
time, you can at least read messages and
browse the lists of files.
```

Using the BMUG BBS

```
:::::::BMUG BULLETIN BOARD SYSTEM:::::::
::::::::MESSAGE AREA 0 - COMBINED::::::::
:<M>sgs <L>ibrary <I>nfo <C>onference
<G>roups <O>ptions <B>ack up <Q>uit:
::::::::::::::::::::::::::::::::::::::::::
BMUG BBS combined message area. Type a #
to see messages in just one message area,
or A for a list of the areas. You can
<D>efine which areas show up in your
"combined" read. Anytime, press H for
help. Enjoy the BMUG BBS!
COMBINED: <S>can <R>ead <P>ost msgs
<D>efine <A>rea list or#,<,or>, <H>elp?
```

The two principal areas of the BMUG BBS are **Messages** and **Library** areas. Nothing that you can do will hurt the BBS. The remainder of this article will focus on the Library and uploading and downloading files.

You can transfer files from the Library menu. Type "L" at any Menu prompt to get there. Once you're in the Library area, you will see a listing of all the file areas available for you to browse. Figure 2 shows what the screen looks like when you arrive.

The Library Menu

```
Command: L
:::::::BMUG BULLETIN BOARD SYSTEM:::::::
::::::::::::SOFTWARE LIBRARY::::::::::::
:<M>sgs <L>ibrary <I>nfo <C>onference
<G>roups <O>ptions <B>ack up <Q>uit:
::::::::::::::::::::::::::::::::::::::::::
BMUG BBS Software Library. Type the number
(or the shifted number) of the library you
want to check. The BBS will list the files
in that area, and let you specify files to
download. While listing files, P pauses
and S stops.

0: New files                Shift-0: Message archives
1: Business                 Shift-1: Paris (Mac II)
2: DA's (Desk Accessories)  Shift-2: Pictures
3: Demonstration Programs   Shift-3: Programming
4: Education                Shift-4: Sound
5: Fonts                    Shift-5: Source code
6: Games                    Shift-6: Technical notes
7: Graphics programs        Shift-7: Telecommunications
8: HyperCard stacks         Shift-8: Text processors
9: Language                 Shift-9: Utilities

LIBRARY: Type a number or shift-number to
download, <U>pload, or <H>elp?
```

From the Library menu, typing a number or a shifted number will display all the files, in that category, that are available for downloading, and then give you the opportunity to specify files to download.

Probably the most popular library category is the **0: New Files** category. This is the area where all files are first made available. After they've been in this section for awhile, they will appear in their appropriate section. The beginning of this section has several files you will find useful. Figure 3 shows a listing of the start of this file section.

Be sure to download or otherwise obtain *UnStuffIt*. If you download files from the BBS at all, you'll want *UnStuffIt*, in order to **unStuff** files that you receive from the BBS.

What files are currently available in the **New Files** section. At the start of the listing

are some files that you can use to convert files downloaded into usable format.

```
Command: O
Type P to Pause, S to Stop listing

Latest uploads - newly uploaded programs
will be stored here forseveral weeks before
being moved to an appropriate file area.
Most recent additions are listed first.

PACKIT.APP      29952 Packit III, v1.3 -
                      compress is now de-
                      fault
SHRINK.APP      10880 ShrinktoFit v1.2 -
                      required for .STF fil
MACARC.APP      36992 MacArc v0.03 - for
                      .ARC files
DA              22400 UnStuffit DA
MORE            17024 Docs for StuffIt Utils
STUFFIT1.5      96896 The latest version
                      of StuffIt.
UNSTUFF1.40     30080 UnStuffIt 1.40, fixes
                      unpack bug
ALLFILES5/31    89216 All the files on the
                      BBS and location
ACTAREADER      42496 Needed to read BMUG
                      Meeting Minutes
MINUTES          5632 BMUG minutes for 3/
                      17/88.Acta format
```

Uploading files to the BBS

If you have a file that you would like to contribute to BMUG, you can **upload** it to the BBS. Before you do so, however, you should look carefully at the file and make sure it meets all of the following criteria:

- It isn't already in the BMUG library. Check carefully, as someone may have placed the file in a not-so-obvious category. If we have an older version of the file, please do upload your new one, but mention in the description that the new file replaces the older one.
- It is publicly distributable. Look in the "About..." box, or in a related documentation file. If there is a copyright notice, assume that the file is not distributable unless the author explicitly allows noncommercial or not-for-profit distribution. If in doubt, contact the author for permission.
- It is worth distributing. We have a limited amount of disk space available for files on the BBS, and we'd like to save it for only the best, most useful files. The bigger a file is, the more useful it needs to be to justify its existence on the BBS. Keep in mind our "family-oriented" standards, as well as our download limit, currently 300K/day.
- It is complete, intact, and virus-free. If you don't know where it came from, we'd (generally speaking) rather not have it. Any related documentation files should be packed together (using *StuffIt*) so that anyone downloading the file will get all of the pieces in one fell swoop.

Once at the Library menu, typing a "U" will start you down a path that will ask you some questions. You will be asked to name the file to be uploaded and provide a short (half-line) description. Unfortunately, only 10 characters worth of name are allowed on the BBS, including the ".SIT" extension that indicates that the file requires *StuffIt*, so plan ahead and abbreviate profusely to create a miniature name. Consult the guidelines in the help file available on the BBS in the Library menu for advice on naming files. Please make your files and file names **descriptive** and accurate, unlike the example shown below.

Then, you will be asked what file transfer protocol to use. In Figure 4 there is included the minimal help file that is available. In general most people will be using XModem-Checksum protocol. Though the XModem and YModem-CRC protocols are faster, not all programs support those protocols. (See Endnote 3 for a further description of the XModem file transfer protocol.)

Uploading files to the BMUG BBS

```
LIBRARY: Type a number or shift-number to
download, <U>pload, or <H>elp?
Command: U
Enter 1-12 char full file name: GoodPDDA.sit
Description (40 chars max.)
1—5—10—15—20—25—30—35—!
This is a great DA that all will want.
Choose upload protocol:
1 - Prompted ASCII
2 - ASCII, XON after <CR> rcvd
3 - ASCII, XOFF/XON flow control
4 - XMODEM Protocol - Checksum
5 - XMODEM or YMODEM Protocol - CRC
6 - Help with protocols
Which one? 6
TBBS allows the following upload proto-
cols:
1 - Prompted ASCII. Your terminal program
    must stop sending after each line
    until it receives the prompt charac-
    ter ">".
2 - ASCII, XON after <CR>. Your terminal
    program must stop sending after each
    line until it receives the X-ON (Ctrl-
    Q) character.
3 - ASCII, X-OFF/X-ON. Your terminal pro-
    gram must stop sending when it
    receives an X-OFF (Ctrl-S) until it
    receives an X-ON.
4 - The standard XMODEM error checking
    protocol for direct sector transfers.
5 - Enhanced XMODEM protocol using a CRC
    for greater error detection.
Automatically accepts YMODEM protocol
which uses larger blocks for efficiency.
Choose one: 4
File open, ready to receive
(Ctrl-X to abort)
```

At this point you would go to the menu where you activate the "send file" feature of your terminal program. Double check to see that you are using the same protocol as you told the BBS you were going to use and then select the file to be sent.

Other uploading tips

If you choose a name for your file that already exists in the upload directory, TBBS will tell you that a file by that name already exists. Choose another name and continue with your upload. This doesn't happen often, but it can be disconcerting when it does.

Try to include the version number of the file in the name or description. This makes it easier for people to decide if the new file really is new to them.

Storage space is always a problem with BBS's and BMUG's is no exception. Therefore, always compress files before you upload them. *StuffIt* or *Compactor* will usually reduce the size of the file by 35-40% or more! This makes a significant difference in the long run! Be sure to pay the shareware fee if you exercise this option.

When you upload a file to the BBS it is kept in a special area unavailable to others. SysOps download the files and the check them over for appropriateness for the board, the BMUG BBS is a "G" rated BBS. During this phase we hope to catch any file that may be a virus or a Trojan horse. The copyright information of the file is also checked to insure that no commercial software is made available. Only after all of these steps have been completed will the file be made available for downloading. This process can take a few days or as much as two weeks. Send a message to the SysOp if you feel that you have such a hot file that you can't wait that long.

WARNING: The SysOps do everything possible to prevent destructive software from appearing on the BMUG BBS however...

Always try out new software on a disk you can afford to lose. Never, Never, Never run new software on a hard disk drive.

Downloading files from the BMUG BBS

Downloading files is fairly straightforward. Go to the library menu, and select a particular category to look at by typing a

number or a shifted number. A whole list of files will scroll by on the screen. Typing the letter "p" will pause the screen and let you look at what is there, and pressing any key will start the listing again. If you don't want to wait for the whole list, type a "s" which will stop the display and give you the prompt to enter a file name.

However you get to the prompt, enter the name of the file that you want to download, exactly as it is spelled in the file directory listing. It will then ask you for the type of protocol that you would like to use. Again, XModem is the most likely candidate. The BBS will then display the number of records the file takes up and how long it will take to down load the file at your current speed. At this point you should insure that you are using a matching protocol, MacBinary XModem. Then find the command or menu item that begins the reception of the file.

During either uploading or downloading most programs will provide you with a "thermometer," an indication of how much has been sent and how much is left to be sent. Sometimes this will even include the time left to complete the transfer.

Downloading files from the BBS

```
LIBRARY: Type a number or shift-number to
download, <U>pload, or <H>elp?
Command: 0
Type P to Pause, S to Stop listing
-----------------------------------------

Latest uploads - newly uploaded programs
will be stored here forseveral weeks before
being moved to an appropriate file area.
Most recent additions are listed first.
-----------------------------------------

PACKIT.APP      29952 Packit III, v1.3 -
                      compress is now de-
                      fault
SHRINK.APP      10880 ShrinktoFit v1.2 -
                      required for .STF fil
MACARC.APP      6992  MacArc v0.03 - for
                      .ARC files
DA              22400 UnStuffit DA
MORE            17024 Docs for StuffIt Utils
DOCS            66176 The Docs for StuffIt
                      1.4
STUFFIT1.5      96896 Newest StuffIt, fixes
                      MF bug, no new fea
UNSTUFF1.40     30080 UnStuffIt 1.40, fixes
                      unpack bug
                .
                .
                .
ANIMCURS.SIT    4096  Resources to animate
                      the cursor in Finder
MANDLEZ9.SIT    41088 Mandle Zot v.98 new
                      version
SUPCONV.SIT     43776 SuperConverter, from
                      Silicon Beach, Great
NOTETAKE.SIT    12800 Simple note taking
                      app, uses new TEdit
Type Selection or L for list,
P to set protocol, <CR> to exit: animcurs.sit
The following protocols are available:
1 - ASCII - DC2/DC4 (^R/^T) Capture
2 - ASCII only, no Control Codes
3 - XMODEM protocol
4 - YMODEM protocol
Choose one: 3
File open: 32 records
Send time: 0 mins, 40 secs at 1200 bps
Awaiting Start Signal
(Ctrl-X to abort)
-----------------------------------------
```

At this point , check to see that your file transfer protocol matches what you told the BBS. You then initiate a "receive file" command. After the transfer you should receive the following prompt:

```
-----------------------------------------
Type Selection or L for list,
P to set protocol, <CR> to exit:
```

Etiquette on BMUG BBS

There are a few rules that you must follow when posting messages in international message sections. Messages in these sections are transferred all over the world, so please

don't put messages of purely local interest in them. Here are the immortal words of Richard Bollar, EchoMac Moderator, on what is an inappropriate posting:

- Inappropriate postings are defined as messages that are of local interest, or do not deal with the Macintosh is a reasonably direct fashion. Examples of local interest, or off-topic messages are:
  - BBS advertisements [please post in BayMAC — editors]
  - Jokes about the Vice President (but feel free to netmail those to me!)
  - Why it's great to speak Japanese
  - For Sale ads [please post in MacFSale or MacAds Conference — editors]
  - Job Opportunity Postings [please post in BayMAC — editors]
  - Complaints about off topic or local interest messages [please post in BMUG Local]
- This echo will be administered by netmail. Complaints are to be sent by netmail to the moderator, who will then act as appropriate. Social Statements (may become rules at a later date):
- Representives of companies selling computer hardware and software should identify themselves if they are involved in discussions that they or their companies have a financial interest in.
- Pseudonyms or handles are discouraged.
- Be polite! Let's not have to go to AlterNet to get this. What may be your poison may be another man's meat. I even know some folks who are still using Jazz, or who like Microsoft. Don't state your opinions as facts, and be moderate.

— Richard Bollar,
EchoMac Moderator

Sending UUCP Mail

Lots of users have asked us how to send UUCP mail from the BMUG BBS. Unfortunately, the UUCP connection has been somewhat flaky lately. Among other things, Pac Bell disconnected the phone on the BMUG Mail Hub, and so it took us a few months to get the mail rerouted. The installation of the new mailer on the BMUG BBS (called TIMS) took us two months to get debugged, during which time mail ony came in and out intermittently. Things are beginning to settle down, but we expect to be doing major work on the BBS in January of 1991, so things could be turned upside down again. Stay tuned.

Like most powerful tools however, learning to take full advantage of UUCP mail can be somewhat mystifying. In the process of trying it, you'll probably make some discoveries, and we'd very much like you to share these with us, so that we can make this collective wisdom accessible to the members.

Kudos to the Developers

The developers of the FidoNet/USENET gateway software, (called **UFGATE**) which make this possible, are: Tim Pozar, Garry Paxinos, and John Galvin. **UFGATE** translates **USENET** news and **UUCP** mail into FidoNet form (and vice versa), allowing FidoNet bulletin board systems to receive USENET conferences, and to send receive UUCP mail. **UFGATE** is available for MS or PC DOS computers running the QuickBBS, Remote Access, OPUS, or Fido Bulletin Board Systems.

Caveat Mailor

It is important to understand that we cannot guarantee the privacy of the UUCP mail you send, because it is not encrypted, and because it often passes through many computer systems before reaching its ultimate destination. Furthermore, BMUG sysops Raines Cohen, Alex Lau, Gray Shaw and Bernard Aboba reserve the right to examine all messages on the BMUG BBS, private or otherwise, in order to insure that the BBS is being used in a lawful manner. In addition, it should be understand that private messages on the BayMAC conference

For more information on UFGATE, contact:

Tim Pozar
2215-R Market St.,
Suite 188
San Francisco, CA
94114

Fido 1:125/406

415/391-2657

can be read by all the Bay Area sysops receiving the conference. Please use good judgement, and do not use the BBS to mail information that would cause harm if it were made public.

Special Addresses on BMUG BBS

Before getting down to the details of global e-mail,we would like to share some hints about special mail addresses on the BMUG BBS to which users can send mail to get help with membership problems, to submit articles for the newsletter, to get info on BMUG, or help with a technical problem. These special addresses are:

BMUG Departments

Help	Technical Support
Info	BMUG General Information
Pub	Publications
Bbs	Bbs bug reports and questions
Mail	E-Mail problems
Biz	Business Office

These special User ID's are primarily meant for communicating with users on the INTERNET and UUCP networks, rather than users of the BMUG BBS itself. If you have a question you need answered while on BMUG BBS, please send mail to SYSOP.

To people sending ARPA and UUCP mail to BMUG, these addresses operate **just like** other user id's on the BMUG BBS. You can address mail to these id's just as if they were normal people. For example, a user on the ARPANET could get information on bmug by sending mail to:

`bmug!info@apple.COM` *or*
`info@bmug.fidonet.org`

Through use of these special ID's, it is now possible to order BMUG Disks, renew your membership, submit newsletter articles, or ask for help electronically. No matter where you are in the world, BMUG can reach you!

The PostMaster Doesn't Ring Twice

Needless to say, the global connectivity afforded by BMUG BBS is a great resource. In order to help you make use of this, we have made up a list of examples on how to send mail. Be warned however, that not all the techniques presented here have been tried; therefore there is some chance that the mail might bounce back. Bounced mail will come back with an error message from our UUCP host. If you get such an error message, please send me a note, and I'll try to figure out what went wrong. If you figure it out before we do, and you discover a way to send mail that isn't included in here, you are hereby morally burdened to send us mail about it!

In order to help out with sending UUCP mail, a few sample BBS sessions are also included.

Glossary

In the following tables a field enclosed in <> does should not be typed literally. Rather, fill in the appropriate information for the specific circumstances. For example, **<Last.First>** means your User Name on BMUG BBS. For example, if someone were sending a mesage to Bernard, they would substitute Bernard.Aboba for the <First.Last> field. A field like <WELL ID> or <ID> refers to a User ID on a Commercial Service. For example, if your WELL account is bmug, you would substitute bmug for the <WELL ID> field.

The **<host 1>** and **<host 2>** fields refer to hops in the UUCP mail address. In UUCP mail, the message goes from one machine to another until it reaches the final destination. The best way to figure out UUCP addresses is to ask the recipient for their mail address. Very often, their return address will be included in the "signature" field of messages they post on USENET.

The **<node>** field refers to the INTERNET node name, often within a given University or firm, as in <node>.berkeley.edu; an example of a <node> field would be garnet as in garnet.berkeley.edu

Mail To and From Commercial Services

Although it isn't widely known, several commercial services are now experimenting with gateways to the InterNet. Among the services recently installing an InterNet gateway are AppleLink, CompuServe, and Connect. This means that in principle, BMUG members can send mail back and forth to Apple employees. Of course, USENET connected services like Portal or The Well already offer UUCP mail, and BMUG members may send mail back and forth to these services.

Service	TO Service
	FROM Service to BMUG
WELL	apple!well!<ID>
	apple!bmug!<First.Last>
Portal	cup.portal.com!<ID>
	sun!apple!bmug! <First.Last>
AppleLink	applelink.apple.com!<ID>
	<First.Last> @bmug.fidonet.org@DASNET #
Connect	DCJCON.DAS.NET!<ID>
	To: DASNET ; on first line,
	TO: "<First.Last>@bmug.fidonet.org"@DASNET
CompuServe	compuserve.com!<ID>
	<First.Last>@bmug.fidonet.org@DASNET

Examples:

WELL	apple!well!bmug
	apple!bmug!Steve.Costa
Portal	cup.portal.com!John_Doe
	sun!apple!bmug!Steve.Costa
AppleLink	applelink.apple.com!UG0001
	Steve.Costa@bmug.fidonet.org@DASNET#
Connect	DCJCON.DAS.NET!bmug
	Steve.Costa@bmug.fidonet.org@DASNET
CompuServe	compuserve.com!70009.1484
	Steve.Costa@bmug.fidonet.org@DASNET

TO InterNet From BMUG

Network	TO Network
Berkeley	<node>.berkeley.edu!<user ID>
ARPANET	<node>!<user ID>
BITNET	<node>.bitnet!<user ID>
CSNET .	relay.cs.net!<node>! <user ID>
UUCP (West Coast)	
	ucbvax!<host1>!<host2>! <user ID>
UUCP (East Coast)	
	decwrl.dec.com!<host1>!<host2>! <user ID>
UUNET .	uunet.uu.net!<host>! <user ID>

Examples:

Berkeley . .	garnet.berkeley.edu!bmug
ARPANET . . .	sumex.stanford.edu!fudd
CSNET . .	relay.cs.net!uchicago!wilson
UUCP (West Coast)	
	ucbvax!apple!bmug!Elmer.Fudd
UUCP (East Coast)	
	decwrl.dec.com!decvax!cornell!jim

Sample Session

In this sample session, I send a UUCP message to bmug at garnet.berkeley.edu, and scan for messages in the sci.electronics conference which deal with capacitors. In the transcript that follows, my typing is highlighted.

```
:::::::BMUG BULLETIN BOARD SYSTEM:::::::
::::::::::USENET MESSAGE AREAS::::::::::
<M>sgs <L>ibrary <I>nfo <C>onference
<G>roups <O>ptions <B>ack up <Q>uit:
::::::::::::::::::::::::::::::::::::::::::
BMUG BBS UseNet message areas. Type the #
to see messages in a particular area, or
press M to go back to the normal BMUG BBS
(FIDO) messages, from local to EchoMac.

AREA 1: UMAC - comp.sys.mac, general
        Macintosh discussion
AREA 2: UMACP - comp.sys.mac.dev, Macin-
        tosh programming
```

AREA 3: UHYPE - comp.sys.hypercard, HyperCard discussion
AREA 4: UMACD - comp.sys.mac.digests, Macintosh msg Digests.
AREA 5: UNEXT - comp.sys.next, NeXT computer discussion. TWO-WAY.
AREA 6: UUCP Mail - Electronic mail to other UseNet systems
AREA 7: UPOSTSCRIPT - USEnet comp.lang.postscript newsgroup
AREA 8: UELECTRONICS - usenet electronics discussion
AREA 9: <unused>

USENET AREAS: Type a # to select a msg area, <M>sgs, or <H>elp?
SYSOP: <-> Maintenance

Command: **6**

:::::::BMUG BULLETIN BOARD SYSTEM:::::::
::::::::::USENET AREA 6 - UUCP::::::::::
<M>sgs <L>ibrary <I>nfo <C>onference
<G>roups <O>ptions <B>ack up <Q>uit:
::

UUCP - UseNet private mail area. Post private messages here to UseNet users the world over. Address your msg TO: UUCP, and make sure the first line of the BODY of the msg (NOT the subject line) reads "To:ucbgarnet!jbx" or whatever the address is. Put a space by itself on line two of your message (press space, then return), and then type the content of your message. If you have difficulty, post a message to BERNARD ABOBA with your question.

UUCP: <S>can <R>ead <P>ost msgs <A>rea list or #,<, or >, <H>elp?

Command: **p**
Who is the message to? **UUCP**
What is the subject? **Test for BMUG**
To: UUCP
Subj: TEST FOR BMUG
Is this correct(Y/N)? **y**

Submit Prepared Msg Text(Y/N)? **n**

Enter text of message.
<CR> by itself ends input.

01: To: garnet.berkeley.edu!bmug
02:
03: Here is the body of my message. Note
04: address on line 1. I put a space on
05: line 2, AND NOTHING ELSE!!!! This
06: prevents the TBBS software from word
07: wrapping line 2 onto the mail address.
08: Notice also how the message is
09: addressed To:UUCP when responsinding
10: to the TBBS queries. You MUST include
11: an address on the first line of the
12: message, or the message won't make it
13: outside of bmug.
14:

<L>ist, <V>iew, <C>ont, <E>dit, <R>cpt, <S>ave, or <Q>uit? **s**

Saving message to disk...
:::::::BMUG BULLETIN BOARD SYSTEM:::::::
::::::::::USENET AREA 6 - UUCP::::::::::
<M>sgs <L>ibrary <I>nfo <C>onference
<G>roups <O>ptions <B>ack up <Q>uit:
::

UUCP: <S>can <R>ead <P>ost msgs <A>rea list or #,<, or >, <H>elp?
SYSOP: <D>elete msg <-> Maintenance

Command: **a**

::::::::BMUG BULLETIN BOARD SYSTEM:::::::
::::::::::USENET MESSAGE AREAS::::::::::
:<M>sgs <L>ibrary <I>nfo <C>onference
<G>roups <O>ptions <B>ack up <Q>uit:

BMUG BBS UseNet message areas. Type the # to see messages in a particular area, or press M to go back to the normal BMUG BBS (FIDO) messages, from local to EchoMac.

AREA 1: UMAC - comp.sys.mac, general Macintosh discussion

```
AREA 2: UMACP - comp.sys.mac.dev, Macin-
        tosh programming
AREA 3: UHYPE - comp.sys.hypercard, Hy-
        perCard discussion
AREA 4: UMACD - comp.sys.mac.digests,
        Macintosh msg Digests.
AREA 5: UNEXT - comp.sys.next, NeXT com-
        puter discussion. TWO-WAY.
AREA 6: UUCP Mail - Electronic mail to
        other UseNet systems
AREA 7: UPOSTSCRIPT - USEnet comp.lang.
        postscript newsgroup
AREA 8: UELECTRONICS - usenet electron-
        ics discussion
AREA 9: <unused>

USENET AREAS: Type a # to select a msg
area, <M>sgs, or <H>elp?
SYSOP: <-> Maintenance

Command: 8

:::::::BMUG BULLETIN BOARD SYSTEM:::::::
::::::USENET AREA 8 - UELECTRONICS::::::
<M>sgs <L>ibrary <I>nfo <C>onference
<G>roups <O>ptions <B>ack up <Q>uit:
::::::::::::::::::::::::::::::::::::::::

UELECTRONICS - UseNet electronics
newsgroup. Two-way public messages.

UELECTRONICS: <S>can <R>ead <P>ost msgs
<A>rea list or #,<, or >, <H>elp?
SYSOP: <D>elete msg <-> Maintenance

Command: s
Type P to pause, S to stop, N to skip to
next msg

<F>orward Scan
<R>everse Scan
<N>ew Message Scan
<S>elective Scan
<A>bort Scan

Which One? s

Select <F>rom, <T>o, or <S>ubject? s

Enter text to select by: Capacitor
Mark for Later Retrieval? y

Section has 516 Msgs, #44260 to 51487
Starting number, <CR>=First:

Msg#:44274 *UELECTRONICS*
05-05-89 11:59:00
From: BOB MYERS
 To: ALL
Subj: RE: ANOTHER CAPACITOR QUESTION

Mark(Y/N/S)? Y

Msg#:50797 *UELECTRONICS*
06-06-89 00:57:00
From: GREG CORSON
 To: ALL
Subj: "SUPER" CAPACITORS == BATTERIES?

Mark(Y/N/S)? Y

Msg#:51274 *UELECTRONICS*
06-09-89 10:46:00
From: VASO BOVAN
 To: ALL
Subj: CAPACITOR-LOST JOULES

Mark(Y/N/S)? S

:::::::BMUG BULLETIN BOARD SYSTEM:::::::
::::::USENET AREA 8 - UELECTRONICS::::::
<M>sgs <L>ibrary <I>nfo <C>onference
<G>roups <O>ptions <B>ack up <Q>uit:
::::::::::::::::::::::::::::::::::::::::

UELECTRONICS - UseNet electronics
newsgroup. Two-way public messages.

UELECTRONICS: <S>can <R>ead <P>ost msgs
<A>rea list or #,<, or >, <H>elp?
SYSOP: <D>elete msg <-> Maintenance

Command: r

Type P to pause, S to stop, N to skip to
next msg
```

```
<F>orward or <R>everse Multiple
<N>ew Messages
<M>arked Messages
<S>elective Retrieval
<I>ndividual Message(s)
<A>bort Retrieve

Which One? m

Pause after each msg(Y/N)? y

Msg#:44274 *UELECTRONICS*
05-05-89 11:59:00
From: BOB MYERS
 To: ALL
Subj: RE: ANOTHER CAPACITOR QUESTION
From: myers@hpfcdj.HP.COM (Bob Myers)
Date: 27 Apr 89 20:11:00 GMT
Organization: Hewlett Packard — Fort
Collins, CO
Message-ID: <11170001@hpfcdj.HP.COM>
Newsgroups: sci.electronics

> Can I substitute a non-polorized,
> electrolytic capacitor for a polorized
> one? Thanks in advance. And thanks for
> all the very informative replies I
> received from my previous question about
> capacitors.

Yes, but you probably won't want to. Non-
polar electrolytic capacitors
are much more difficult to find (hence
more expensive) than similar polar
types. They're pretty much a "special
applications only" part.

Bob Myers KC0EW HP Graphics Tech. Div. Ft.
Collins, Colorado {the known
universe}!hplabs!hpfcla!myers Opinions
expressed here are not those of my
employer or any other sentient life-form
on this planet.

---

 * Origin: MailCom Public USENET HST
apple!mailcom 415/855-9548 (Opus 204/444)
<A>gain, <R>eply, <N>ext, or <S>top?
```

FROM InterNet to BMUG

Network	From Network to BMUG
Berkeley	<First.Last>@bmug.fidonet.org
INTERNET	<First.Last>@bmug.fidonet.org
BITNET	<First.Last> %bmug.fidonet.org
CSNET	<First.Last>@bmug.fidonet.org
UUCP	apple!bmug! <First.Last>

Examples:

Berkeley	Jane.Doe@bmug.fidonet.org
ARPANET	Jane.Doe@bmug.fidonet.org
CSNET	Jane.Doe@bmug.fidonet.org
UUCP	apple!bmug!Steve.Costa

Outside Network	TO Outside Network
ACSNet (Australia)	uunet.uu.net!munnari!<host>.OZ.AU!<user ID>
CDNNET (Canada)	relay.cs.net!ubc.csnet!<host>!<user ID>
COSAC (France)	relay.cs.net!france.csnet!<host>!<user ID>
CSNET	relay.cs.net!<host>!<user ID>
DEC ENET	decwrl.dec.com!<host>.DEC!<user ID>
JANET (UK)	CS.UCL.AC.UK!<host>!<user ID>
JUNET (Japan)	relay.cs.net!japan.csnet!<host>!<user ID>
MAILNET	MIT-MULTICS.ARPA!<host>.MAILNET!<user ID>
NSFNET	ucbvax.berkeley.edu!host!<user ID>
VNET (IBM)	IBM.COM!<host>!<user ID>
XEROX	XEROX.COM!<user ID>.<registry>

From Outside Network to BMUG

Outside Network	From Outside Network to BMUG
ACSNet (Australia)	<First.Last>%bmug.fidonet.org@munnari.oz
CSNET	<First.Last>@bmug.fidonet.org
DEC ENET	DECWRL::"<First.Last>@bmug.fidonet.org"
JANET (UK)	<First.Last>%bmug.fidonet.org@uk.ac.ucl.cs
JUNET (Japan)	<First.Last>@bmug.fidonet.org
MAILNET	<First.Last>%bmug.fidonet.org@mit-multics

To Foreign Countries From BMUG (UUCP Style Addressing)

Country	From Country to BMUG
Austria	uunet.uu.net!tuvie!<host>!<user ID>
Belgium	uunet.uu.net!prib2!<host>!<user ID>
Denmark	uunet.uu.net!diku!<host>!<user ID>
Finland	uunet.uu.net!tut!<host>!<user ID>
France	uunet.uu.net!inria!<host>!<user ID>
Great Britain	uunet.uu.net!ukc!<host>!<user ID>
Italy	uunet.uu.net!i2unix!<host>!<user ID>
Iceland	uunet.uu.net!hafro!<host>!<user ID>
Korea	relay.cs.net!kaist.csnet!<host>!<user ID>
Netherlands	uunet.uu.net!mcvax!<host>!<user ID>
Sweden	uunet.uu.net!enea!<host>!<user ID>
Switzerland	uunet.uu.net!cernvax!<host>!<user ID>
West Germany	uunet.uu.net!unido!<host>!<user ID>

From Foreign Countries To BMUG (INTERNET Style Addressing)

Country	From Country to BMUG
Austria	uunet.uu.net!apple!bmug!<First.Last>@tuvie
Belgium	uunet.uu.net!apple!bmug!<First.Last>@prib2
Denmark	uunet.uu.net!apple!bmug!<First.Last>@diku
Finland	uunet.uu.net!apple!bmug!<First.Last>@tut
France	uunet.uu.net!apple!bmug!<First.Last>@inria
Great Britain	uunet.uu.net!apple!bmug!<First.Last>@ukc
Italy	uunet.uu.net!apple!bmug!<First.Last>@i2unix
Iceland	uunet.uu.net!apple!bmug!<First.Last>@hafro
Korea	kaist.csnet!relay.cs.net!apple!bmug!<First.Last>
Netherlands	uunet.uu.net!apple!bmug!<First.Last>@mcvax
Sweden	uunet.uu.net!apple!bmug!<First.Last>@enea
Switzerland	uunet.uu.net!apple!bmug!<First.Last>@cernvax
West Germany	uunet.uu.net!apple!bmug!<First.Last>@unido

Summary

- The BBS is available for use 22 hours a day (it currently shuts down to process mail from 2:00 PM to 3:00 PM, and from 3:30-4:30 AM Pacific Time).
- Each member/user may download up to 300K of files each day.
- All the downloadable files are kept in the Library section of the BBS and further subdivided into 20 categories.
- The files on the BBS come from a variety of places and some are quite old and some are very new.
- Once you have downloaded a file it is likely to have a three character extension to its name.
- The most common extensions are **.sit** or **.std** to indicate a file that needs *UnstuffIt Deluxe* to unstuff it. Other common ones are **.cpt** indicating that Compactor will be needed to uncompress the file. An extension of **.pit** means that either *StuffIt* or *Packit* will be needed to uncompress and separate out the individual files.
- A very few files may have an extension of **.stf** requiring the program *Shrinktofit* or **.arc** which needs *MacArc* to uncompress.
- All files are inspected by the SysOps before posting but this doesn't guarantee that the file is virus-free or that it will perform as described. "User Beware..."

When you upload a file remember to stuff or compress the file with *StuffIt*. Also try to provide useful descriptions of the file's contents.

Most importantly, have fun using the BBS for all its functionality. Send messages to your friends in the BMUG local group or make new friends out in there in the broad reaching realms of EchoMac. Up and download files to your hearts content. Remember the that BBS is a resource available to you and your membership supports its operation.

Common questions:

What comic books should I read while redialing?

Anything written by Alan Moore or drawn by Frank Miller or Bill Seinkeivicz, and of course, Dave Sim.

Why are all the characters scrunched onto the left side of my screen?

Another common question comes from misconfiguring your terminal initially. When it asks for "Terminal Width (10-132)?" it means how many **characters**, not how many **inches**. The appropriate answer is usually 80 characters. Entering 10 will give you a screen that is only 10 characters wide. This makes it VERY difficult to do much of anything. If you find yourself in this situation you should type an 'O' to take you to the Options menu. Even if you can not see the options type a 't' for terminal settings. Then type '80' for the terminal width. Pressing return to answer each of the other questions should be adequate. Once you have completed these questions your terminal should revert back to a line length of 80 characters and things should look more normal. Now you could go back into the <T>erminal Settings to fine tune any other setting that may not have been set correctly.

Why can't I log onto the BBS at 3:30am?

In order for the BMUG BBS to receive incoming mail, the high speed line must be available to receive incoming calls from other BBS's during certain hours. If you call the high speed line 415/849-1795 between the hours of 12:30 AM and 4:30 AM, or between the hours of 12:00 PM and 2:00 PM, you will be informed that the line is reserved for receiving incoming FidoNet mail, and you will be kicked off. Don't just keep trying to call in if you do reach this program because

your calls will block other BBS's from connecting and passing files and messages back and forth. Since the BMUG BBS can now receive incoming mail on the high speed line while letting users on the other lines continue to log on, you can just call 415/849-2684 to get on to the BBS, and everything will be fine.

In order for the BBS to process the incoming mail that was received during the mail hours, the entire board must be made unavailable for an hour in the afternoon, and another hour in the early morning hours of each day. At this time several programs are run that take the mail that was received, and import it to the message sections, and export mail from the message sections to the "outgoing mail" area. Symptoms of this is when you call the BBS between about 2:00 PM and 3:00 PM, and 4:30 AM and 5:30 AM. During these hours when you call the BMUG BBS, you should just get a busy signal.

Users often like to upload an application and the documentation to go along with that application. A common way would be to upload each file individually. However, once posted, the users of the BBS would often only download the application and miss the documentation. What was needed was some way of combining the application and the documentation. The first program, in wide use, to accomplish this was called *Packit* . Many of the older files on the BMUG BBS are in the *Packit* format. You will be able to tell if the file you download is in *Packit* format if the name ends in **.pit**. This is a convention used to specify the program used to combine the files together.

One other aspect of uploading files is the size of the file. Often documentation is long, and together with the application a combined file could be 100+K in size. A file this size can take quite awhile to upload as well as the same length of time to download. To handle this, *Packit* included a compression pass that would attempt to minimize the size of the combined file. This went a long way toward addressing the main problems of combining related files and uploading and downloading times.

StuffIt was developed by Raymond Lau to address some common problems with BBS's and with the USENET system for sharing files. Ray has improved upon the compression algorithms used in *Packit*. In fact, Ray uses two different algorithms for compression and chooses the one that compresses the file the most. Files that have been 'stuffed' end in the suffix **.sit**.

In addition, *StuffIt* will unpack files that have been packed with *Packit*. Because *StuffIt* uses a better compression scheme, can combine files together, can unpack files that have been 'packed' with *Packit* it has become the standard program on the BBS.

StuffIt is currently the standard program for combining and compressing files for the BMUG BBS.

StuffIt will also "binhex" and "unbinhex" a file for uploading to the USENET system. (This last feature is not used in conjunction with the BMUG BBS. Binhex is needed only when the communication lines are 7 bit instead of 8 bit. The link from your modem to the BBS is 8 bit therefore binhex is not needed.)

Recently, a commercial version of *StuffIt* has come out, called *StuffIt Deluxe*. *Stuffit Deluxe* files are also denoted with the suffix **.stt**. However, to unstuff these files, you need to get hold of the freeware program called *UnStuffit Deluxe*. Since *Unstuffit Deluxe* will also decompress old Stuffit archives, this is the software to get.

What is XModem protocol and why are there four different types in my terminal program?

In brief, XModem is a system whereby the terminal program sends a packet of characters to the host or BBS and then waits for the host or BBS to respond with a message that it has correctly received the packet. The terms *Checksum* and *CRC* refers to the test that the host runs on the received packet to make sure that there were no errors introduced by line

noise or other problems with the transmission. If the packet fails the 'test', this is conveyed back to the sending terminal program and the program retransmits the packet until it is successfully received by the host.

There are multiple types of XModem protocols in your terminal program because of the special nature of a Macintosh file.

Often, two of the types will be Binary XModem and Text XModem. These are used for basic, no frills, file transfers to larger mainframe computers or other micro-computers. There is a 'standard' for XModem transfers and these two formats conform to those standards. Thus it is possible to transfer Macintosh Text and Binary files to alien machines elsewhere in the universe. Neither of these two protocols are used with your common Mac BBS's or online services.

The other two types of XModem are often referred to as Mac XModem and MacBinary XModem. Mac XModem evolved due to Apple setting a standard in their *MacTerminal* application. Mac XModem is mainly used when communicating with UNIX or VMS based computers. There are several protocols on these machines that let Macintosh files be transferred to and from these very different systems without losing their Macintosh integrity, that is, they can later be downloaded to a Mac and be quite usable as an application, document or text file.

The last, but certainly not least protocol is **MacBinary XModem**. *This is the protocol to use for communicating with most BBS's and the online services.*

The XModem part we have already talked about. It is the way that files can be accurately transferred from one computer to another without introducing errors. MacBinary is the new term here. The Macintosh uses an interesting convention for its files. Each file on a Macintosh is actually composed of THREE separate files. One is called the Resource file or fork, another is the Date file or fork and finally there is the Info or Header file. The resource file contains the program code and other resources needed for an application to operate. It is this part of the Macintosh file that the great utility, *ResEdit*, can work on. The data file is where information and text are stored.

Thus, documents for a word processor usually have large data files but small or empty resource files, while applications will usually have large resource files and small or empty data files. In order to keep track of how the two files come together and information such as when the file was created and modified, there is a third part to the Macintosh file called the header or info file.

Having one Macintosh file composed of three separate files causes all sorts of problems for other types of computers. Mainframes and MS-DOS machines have programs and documents but there is a one to one correspondence between an application and the file.

To move a Macintosh file, these three files have to be moved if it is to keep its "Macness." Early in Mac evolution three files were sent to the host and were stored on the host as three separate files. Often named MacFile.rsrc, MacFile.data, and MacFile.info. Clearly it was a nightmare to move these around and inevitably one of the files would get lost or damaged making the whole Mac file unusable.

MacBinary addresses this issue in a smooth and almost transparent way. MacBinary is a protocol for combining the three parts of a Mac file into a single file which can be moved to a host using conventional XModem protocols and stored on the host as a single file! The answer to all the problems! This is so clearly the answer that most Macintosh terminal programs have incorporated this protocol into their programs so that the user really doesn't have to do anything special to have this accomplished. This protocol is called the MacBinary XModem protocol. ALL the files on the BMUG BBS are stored in this format! Why All? Because the BBS runs on one of those MS-DOS machines that don't know about files that are composed of multiple parts.

Online Faces — Updated

compiled by Randy Simon

Well, here we go again with my favorite part of playing on the BBS's. Not all the faces listed here are new, but I thought I'd include some of the basics for you newcomers.

To view the faces, turn the page sideways. What you will see is generally a pair of eyes (a colon ":"), a nose (a hyphen "-"), and a mouth (a parenthesis (")"). After a while looking at these things— you'll get used to 'em. :-)

Sometimes you can leave the *nose* off — no big.

At the end of this section, there are some abbreviations that are commonly used on online services.

Enjoy!

Basics

```
<-  . . . Refering to self
:-) . . . Smile
:-D . . . Smile II
:*  . . . Kiss
^*  . . . Controlled kiss
'-) . . . Wink
;-) . . . Wink II
:-X . . . My lips are sealed
:-P . . . Tongue-in-cheek
:-y . . . Tongue wagging
()  . . . A Hug
<>  . . . Kiddy Hug
{}  . . . Romantic Hug
[]  . . . Grandmother Hug
:'( . . . Crying
O:) . . . Angel
}:> . . . Devil
```

Esoteric Faces

```
:-):-(  . Masks Theatrical
          Comments
:<) . . . For those w/ hairy
          lips
:<)=  . . For those w/ beards
          too
:/) . . . Not funny
P-) . . . Pirate
(@@)  . . You're Kidding!
:-" . . . Pursing lips
:-v . . . Speaking face (side
          profile)
:-V . . . Shouting
:-w . . . Speak w/ forked tongue
:-W . . . Shout w/ forked tongue
:-r . . . Bleahhh
:-f . . . Bleahhh
:-p . . . Bleahhh
:-1 . . . Smirk
:-, . . . Smirk II
<:-O  . . Eeek!
:-* . . . Oops! (covering mouth
          c hand)
:-T . . . Keeping a straight
          face
:-o . . . More shouting
:-O . . . Still more shouting
:-{ . . . Count Dracula
=|:-)=  . Uncle Sam
7:) . . . Reagan
:-# . . . Censored
:-x . . . Kiss, kiss
:-> . . . Another Happy Face
:-( . . . Unhappy
:-C . . . Really Unhappy
:-< . . . Forlorn
:-B . . . Drooling
:-| . . . Disgusted
:-? . . . Licking your lips
```

More Esoteric

```
<:>==  . . A Turkey
:-):-):-) Loud Guffaw
:-J . . . Tongue-in-cheek
:*) . . . Clowning Around
```

:-8 . . . Talking out of both
. . . . sides of your mouth
(:-) . . Messages about bicycles
@= . . . Mushroom cloud
<:-) . . For dumb questions
O= . . . A burning candle
-= . . . A doused candle
OO . . . Highlights on a message
:_) . . . Nose out-of-joint

Even More Esoteric

B-) . . . Batman
B-| . . . Michael Keaton Batman
#:-) . . Matted hair
:-O . . . Oh, nooo! (A la Mr Bill)
|-(. . . Late night messages
:^) . . . Messages about noses
:-{#} . . Someone in braces
(:-$ . . Ill
(:-& . . Angry
(:-(. . Very Sad
(:^(. . Broken nose
(:<) . . Blabbermouth
:-(=) . . Big teeth
&:-) . . Curly Hair
@:-) . . Wavy Hair
?-(. . . Black Eye
%-) . . . Broken glasses

Out of control

+<:-| . . Monk/Nun
{o-) . . Cyclops
(:-|K- . Formal message
@%&$%& . You know what this means
||*(. . Handshake offered
||-) . . Handshake excepted
<&&> . . Rubber chickens
><><< . . Argyle socks
2B|^2B . Message about Shakespere
(-_-) . . Secret smile
<{:-)} . Message in a bottle
<:-)<<| . Message from a rocket
(:-... . Heart Breaking Message
<<<<(:-) Message from a hat salesman
(O-< . . A fishy message
(:->-< . Message from a thief
(I==I) . A message on four wheels
:^{ . . . Another mustache
{' . . . Alfred Hitchcock
@>—>— . . A rose

Some Common Phrases

LOL . . . Laughing out loud
OTF . . . On the floor (laughing)
ROTFL . . Rolling on the floor laughing
AFK . . . Away from keyboard
BAK . . . Back at keyboard
BRB . . . Be right back
BTW . . . By the way...
GMTA . . . Great minds think alike
GTTBRAIBRB Gone to the bathroom and I'll be right back
J/K . . . Just kidding
NIFOK . . Naked in front of keyboard
TTFN . . . Ta Ta For Now
TTYL . . . Talk To You Later
IMHO . . . In My Humble Opinion

Living with QuickMail

by Don Lapin

"Don't tell anyone," the message continued in a conspiratorial tone, "but I just love QuickMail!" Several months after refusing to become a subscriber, our office manager had radically changed her views of office electronic mail from her initial approach ("What, you mean that thing that makes the computer gong at you? No thank you!")

In those several months she had watched nearly everyone in the office begin to use e-mail and, perhaps, had begun to feel an undercurrent of enthusiasm for this newfangled way of bypassing the mountains of paper that accumulate in our in-boxes every week.

Networking software and networking equipment have never been an easy sell at this rapidly-growing Northern California environmental consulting firm, where nearly all expenses must be client billable. We purchased QuickMail and our first AppleShare server in the summer of 1989 for installation at a field site, an office trailer supporting our inspectors at a refinery. As it happened, the AppleShare server was more useful than the QuickMail in completing our field tasks; there was no e-mail server back at the main office to hook up with, and the most efficient method for local communications consisted of hollering at each other across the trailer hallway.

The AppleShare server went into the main office upon completion of the field study work, a key event that began a transformation in the way the company used its LocalTalk network. Producing client reports, sharing spreadsheet data and graphics, and implementing standard office forms became much easier with the file server. Shiva TeleBridges attached to dial-up lines allowed us to spread the word to our other three California offices.

We dusted off the unused QuickMail 10-user pack and began service as a concurrent application on the AppleShare server among a limited number of users. The good word on QuickMail spread through the office and requests came in for additional log-ons. Supporting this trend was a separate decision by our much larger East-Coast affiliate to abandon Microsoft Mail in favor of QuickMail.

Acclimation problems to the new service were relatively few. Generally, the same people who had difficulty understanding that the AppleShare server icon that appeared on their desktop was not *inside* their Mac had some difficulty with the concept that messages were not on their hard disk until *filed*. These users typically allowed large numbers of messages to accumulate on the server. Many users preferred automatic log-in on boot-up; this configuration occasionally causes problems when other workstation users don't issue the QuickMail disconnect command and then log in with their own name ("How come I'm not getting any messages from so-and-so?"). One particularly organized user decided to revise the names of the QuickMail folders in his System Folder because there were duplicate folder names, only to discover that his voluminous number of filed messages had disappeared.

Message volume proliferated—client strategies were discussed, draft reports were attached, meetings were planned, and, more importantly, frozen yogurt runs were announced. When a few individuals began sending quotations and "thoughts for the day" to all subscribers, the Age of Electronic Junk Mail had arrived in our office.

Handling the file-server and mail-server needs of a 40-workstation network was a challenge for our 2-MB Mac Plus and its Jasmine 50 hard disk. Sometimes it crashed

with ID=28 (stack heap) errors; other times QuickMail appeared to have crashed while AppleShare was still working on the same server. A quick jab on the reset button was our most frequent solution to these interruptions. CE Software's Heap Fixer utility may have helped eliminate some of the stack overflow problems, though Heap Fixer had to be re-run each time we changed system software.

QM Administrator can generate a file containing all actions that the server performs if the administrator places an empty text file in the server's system folder named "QMReport". This file can become quite voluminous and should be removed after a day or two (sample, List 1); we found that its contents were or limited use in diagnosing server crashes.

List 1. Sample output, QMReport (partial listing, showing a connection to MCI Mail)

```
517K idle
504K Mail in Store&Forward...
500K idle
500K Checking ERMW_MCI
489K Attempting to call ERMW_MCI
485K Dialing 1,800-456-6245
485K Connected...
484K :IN
484K OOPS 30,FAILURE
484K PAUSE 2
484K TYPE ^M
484K WAIT user name:
484K TYPE ^X«LOGID»^M
484K WAIT Password:
484K TYPE ^X«PASSWORD»^M
484K NOTMAIL no messages waiting
484K WAIT Command:
484K TYPE account^M
484K WAIT Yes or No:
484K TYPE no^M
484K WAIT change:
484K TYPE page^M
484K WAIT depth:
484K TYPE 100^M
484K WAIT change:
484K TYPE term^M
484K TYPE PAPER^M
484K WAIT change
484K TYPE ^M
484K WAIT or TEMPorary:
484K TYPE PERM^M
484K WAIT Command:
484K SUCCESS
484K :BYE
484K TYPE ^XEXIT^M
484K ALERT 1,SUCCESS,log in:
484K PAUSE 10
484K SUCCESS
484K  Call completed successfully
457K Hanging up phone
457K Initializing modem
458K idle
458K Checking ERMW_WC_QM
458K idle
458K Checking ERMW_MCI
```

Hoping to resolve some of our server problems and to some degree anticipating growth, we went through a series of equipment upgrades. Two more megabytes of RAM went into the Mac Plus. The Jasmine 50 became an Info Technologies Quantum 80 when hard disk space became critical (because of the file server, not QuickMail). We opted for a 5-MB SE/30 for more processing power and then upped the storage ante again to a Quantum 105 hard drive. The 105 made two unscheduled trips back to LaCie, after which we upgraded to a smoother-running Quantum 170 from MacTel Technologies in Austin, Texas (the 170 now has less than 15 megabytes of free space!) More recently, we purchased a second 5/40-MB SE/30 to separate the mail server from the file server. The current heap space allocation on this machine is 800 K and there are about 60 subscribers to the on-line mail center.

Interoffice QuickMail

We collected the previous hardware and, following a day-long training session, sent two new administrators back to their respective Irvine and Sacramento offices with Mac Plus-based AppleShare/QuickMail servers. The secretaries in these offices connect to the main office daily by bringing up the TeleBridges, allowing the servers to transfer mail back and forth. To use this method, the

Configure Store and Forward option on the local and remote servers' QuickMail cdev must be changed so mail is not returned to the sender as undeliverable after 90 minutes (we use 1440 minutes for urgent mail and 5760 minutes for non-urgent mail, which might get returned after a long weekend, see Figure 1).

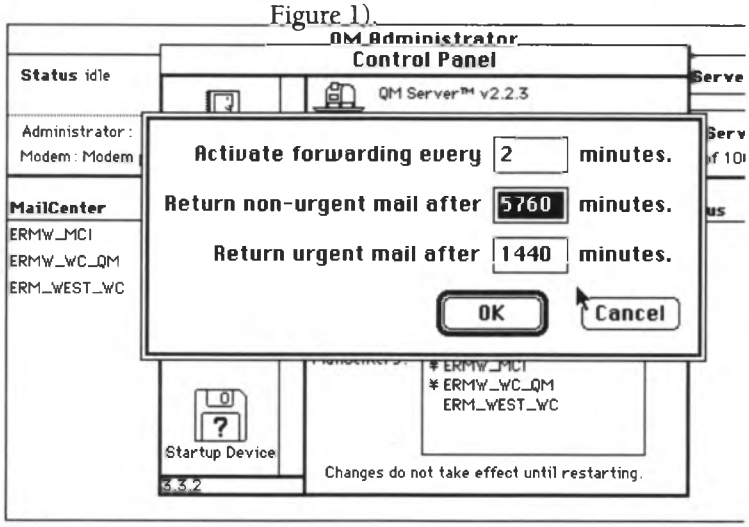

Figure 1. Store and forward preferences for the QuickMail CDEV.

With connections from the other offices taking place over the TeleBridges at arbitrary times, QuickMail's NameServer *White Pages* search utility is of limited usefulness: NameServer updates won't reflect changes at other offices if they are not connected during the update time. Our NameServer doesn't remove names and zones that it does not find, and the update time is set to one year (Figure 2). These settings permit us to perform manual NameServer updates. QuickMail also permits names to be exported and then re-imported into NameServer; this action will prevent the imported names from being removed during an update.

An annoying process — it's just as easy to update the address book for all the offices and post it in the public message section of each server

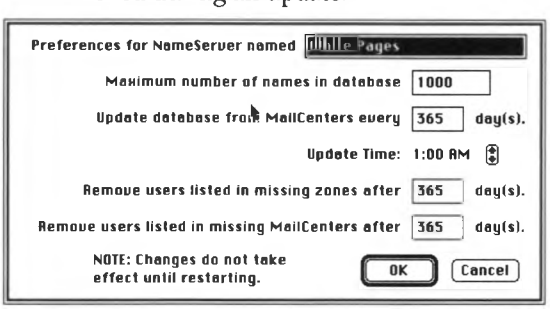
Preferences for NameServer named White Pages
Maximum number of names in database 1000
Update database from MailCenters every 365 day(s).
Update Time: 1:00 AM
Remove users listed in missing zones after 365 day(s).
Remove users listed in missing MailCenters after 365 day(s).
NOTE: Changes do not take effect until restarting.
OK
Cancel

Figure 2. NameServer preferences.

NameServer (2.0.1) could not be installed on the two Mac Plusses serving the other offices because it caused them to crash after booting. This problem may be due to an incompatibility between NameServer and the early Apple ROMs used in these machines.

A more recent, more mysterious problem has plagued our SE/30 mail center, which allowed mail to accumulate in QuickMail's Store and Forward (S&F) folder without sending, even when the dial-in zones came on line. Mail recipients complained that nothing was getting through, and some mail went back to the senders. Completely replacing system software and trashing the S&F folder had no effect; it was necessary to export the user names and re-create the mail center to solve the problem.

Tele-QuickMail

One of the firm partners was thrilled to discover that he could send and receive documents from his PC laptop by calling our mail server. I was less than thrilled when I arrived the next day to find that the mail center had once again overflowed its system heap and dropped out in the middle of an important overnight transmission from the partner. Telecommunications are both the boon and the bane of QuickMail.

The mail server in our main office operates a QM-QM bridge for connections to our eastern affiliates and an MCI Mail bridge for other correspondents. It is not unusual for MCI Mail to end up in the Custodian's box because the correspondent has made an addressing error or simply does not know that the first line of the message requires the statement "ATTN: FirstName LastName" for QuickMail to route it correctly. Otherwise, the MCI Mail bridge has worked well.

Not so the QM-QM bridge, which periodically garbles its on-line handshake when connecting with our affiliates on the East Coast and refuses to accept or send mail. Another frustration was our unsuccessful attempt to implement a call-billing feature

on the QM-QM bridge: our phone system allows the use of a four-digit suffix on the telephone number as a job charge number, but the bridge would not send or receive mail after calling a remote site with two different job charge numbers, presumably due to handshake problems during connection. Perhaps the only way to do this kind of accounting with the current bridge version would be to have senders include the job code in the title of the message, and then periodically transfer the information from the mail center log.

Producing valid address books is another QM-QM bridge problem. Our Pennsylvania-based affiliate sent us their QuickMail address book. Before we could use it, however, the secretary had to change the zone, mail center, and address information for some 200 addressees in the remote office. CE Software includes no provision for exporting address books and they are eminently uneditable when opened with Word 4.0's **Open Any File** command.

QuickMail-PC

The accounting department has been the latest convert to the QuickMail trend. The lateness of their inclusion is just as well, for I don't think I would have had the patience to deal with a QuickMail-PC installation without first knowing thoroughly how the Mac side of the system operates.

The accounting department uses a Novell network operating on thin-wire Ethernet, so it was necessary to install a separate LocalTalk card in the workstation attaching to our server. QuickMail-PC should not be installed on anything less than a 386-type PC compatible unless you're a real whiz at juggling RAM, which is at a comparatively primitive state of development in the IBM-compatible world. The LocalTalk card drivers combine with the QuickMail TSRs (Terminate and Stay Resident drivers) to occupy some choice RAM real estate that many normal applications want to claim for their own use; hence, it is necessary to use programs such as Quarterdeck's QEMM-386 Install and Optimize routines to toss the card drivers and TSRs into *high RAM*, above the 640K limits of PC-DOS's turf.

In keeping with their reputation, Apple includes simple yet effective software for installing their LocalTalk card. However, to use the card drivers in conjunction with the QEMM-386 memory optimization program, it apparently was necessary to change the default *polled* card driver to an interrupt-driven driver (by changing a dip-switch on the card). Without this change, QEMM wrote over the card's memory addresses and I was left with the task of guessing how large a memory range (in hexadecimal, of course) to exclude from memory mapping in the CONFIG.SYS file. Not a task for the faint-of-heart, and I'm sorry to report that the level of user support for many of the PC vendor products is not up to the level I expect from CE Software or other Mac vendors.

The QuickMail-PC product itself is pretty slick once you resolve the vagaries of navigation with arrows and the **Enter** key. One key part of the login procedure (initial selection of zones and mail centers) is particularly confusing without a mouse, because the mail centers don't show up automatically when the zone is highlighted (the user must select **Return**), making it appear that there is something wrong with the network connection. The program undoubtedly will benefit from the installation of a bus-type PC mouse.

Conclusion

QuickMail has greatly improved the intra- and inter-office communications within our company. Installation and acclimation to the product have been relatively easy, and CE Software's technical support has been excellent. I hope that CE Software can improve the telecommunications extensions of the product for greater reliability and flexibility.

Electronic Mail —

A Strategic Business Tool

by Bernard Aboba

This year's Electronic Mail Association Annual Conference, held in San Francisco on October 22-24, offered a vision of a globally interconnected business community, with standards for electronic mail exchange and directory service at its core.

The theme of this year's conference, *Beyond Interpersonal Correspondence*, centered on issues of integration of electronic mail with operations. This theme grew out of a vision of electronic document exchange as a core technology which can direct the flow of information within firms, speed business transactions and improve communications between firms.

The Check is in the Email

While firms in the software industry have been using electronic mail to provide service and support for their customers for years, it is only recently that other firms have begun to integrate electronic mail into all aspects of their operations. The most striking thing about this year's conference was the marked shift in thinking in comparison with a few years ago, when electronic mail was seen more as a curiosity. Today, corporate electronic mail is likely to have become an integral part of a firm's manufacturing systems, information systems, and public relations strategy. At this year's conference, for example, Texas Instruments described how electronic mail fit in with "Just in Time" manufacturing, accounts receivable processing, procurement, transportation, marketing and media relations.

Other firms gave examples of their electronic mail systems. The United Parcel Service system, now servicing over 13,000 users, links UPS facilities around the world. Pillsbury representatives gave an outline of their Marketing and Sales Consolidated Tracking system (MASCOT), an integrated application supporting their sales force through remote dial-in. Pillsbury sales representatives, who are equipped with a laptop, receive a detailed report on each client they are to visit that day. Electronic messaging has also transformed Pillsbury's logistics support. Every day a report is generated on shipments where the carrier has failed to report delivery dates to Pillsbury. These reports are now sent automatically to carriers throughout the United States via a FAX gateway called SoftSwitch.

Electronic mail has become a transformative force in education as well. Dr. James Metcalf of the Texas Association of School Boards described the ELECTRIC PAGES system that GTE Education Services is in the process of building for the State of Texas. A system with similar objectives, Big Sky Telegraph, has been operating for several years at Western Montana College, funded through US WEST and the M.J. Murdock Charitable Trust. When completed, the ELECTRIC PAGES system will provide links between teachers in the K-12 and state university system and educational agencies such as the University Interscholastic League, the Teacher Retirement System, and the Texas Association of School Boards. University departments, such as the U.T. Extension, will also be connected into the system, as will state and federal agencies such as NASA SpaceLink, and the Parks and Wildlife Department.

Another feature of this year's conference was the growing popularity of Local Area Network (LAN) based electronic mail systems. With many of the Fortune 1000 com-

panies now embracing LAN based electronic mail, the number of users of such packages is rising at an exponential rate. Mainframe-based systems such as IBM's PROFS are declining in popularity due to the ease of use of LAN based packages such as QuickMail, running on AppleTalk networks, the Novell Mail Handler (NMH) and cc:Mail, running on IBM PC networks. In the academic community, popular solutions often revolve around TCP/IP based mail packages such as MacMH, a Macintosh front end requiring a UNIX server, which was developed at Stanford and is now in extensive use at UC Berkeley.

Several updates on the X.400 electronic mail exchange standard and the X.500 mail directory standard were also presented at the conference. The X.400 standard was created to allow for exchange of electronic mail between otherwise incompatible corporate mail systems. X.500 was created to provide firms with access to each other's electronic mail address directories. Although X.400 promises the ability to exchange complex electronic documents including text, images and sound, practical considerations have limited the implementation of these features. One problem is that X.400 requires a good deal more processing power than non-X.400 electronic mail. For firms where most mail is internal, having every message conform to X.400 demands is not practical. Many companies have opted for X.400 gateways, which again have advantages and disadvantages. The internal mail system operates much as before, but if documents from the internal electronic mail need to be sent to a supplier, the message is routed through the gateway, translated from the company's message format (often PROFS or VAXMAIL) into X.400, and then sent out. The disadvantage with gateways is that some X.400 features are lost, such as the ability to transmit sound and images.

The update on X.500 disclosed that an update to the standard will be completed in 1992, plugging several holes that have limited its acceptance. Generally, the middle term market for both X.400 and X.500 appears smaller than it did a year or two ago, while systems such as LAN based electronic mail and TCP/IP based systems are increasing their share of the market. Meanwhile, X.400 and X.500 gateways are used to link these disparate systems together.

However, commercial services such as Sprint International Corp, have aggressively implemented X.400 and X.500 technology. SprintMail recently introduced X.500 directory access for its 300,000 subscribers. This kind of enthusiastic implementation of X.500 is critical for the acceptance of X.400, which faces a chicken and egg problem - what use is global connectedness if you can't look up electronic mail addresses?

I'm Gonna Email Myself to You

On the whole, this year's Electronic Mail Association Conference offered an exciting view of a technology that continues to transform the operation of businesses worldwide. While the implementation of ideal standards is somewhat lagging, many companies are rapidly installing today's technology with encouraging results.

What is ISDN?

or What will look different in the world of ISDN

by Herb Dang

ISDN, or Integrated Services Digital Network, is a relatively new technology. It is becoming widely available in Europe; we probably have three to five years to wait here. ISDN means that the telephones will no longer be analog devices but digital ones. Analog devices send messages on the wire by modulating a tone, i.e. taking the tone and changing its frequency. Digital information, whether voice or data, is converted to on/off pulses (digitally encoded) and then sent over the wire.

The major difference will be that the wires will carry three chanels of communication (this refers to the BRI, basic rate interface). The first two will carry your messages, whether sound or data, and are called the B or Bearer Channels. The third chanel is called the D or Delta channel. It will carry data in packets which the telephone companies' switches (the controllers for routing of phone calls) will be able to decode. The telephone switches can forward or decode X.25 data packets (yet another standard to package data in), so computers can send data on this channel as well.

This third channel will be used to gain access to the first two channels. The switch will open a channel on the line when you ask for one (you do this by lifting the receiver on a digital phone, or your computer will ask for one for you). The switch will then set up a 64 kbaud digital B channel for the requester. What's new is that you will be able to open two of these channels, so you can talk and send data at the same time, or send data on two channels at once.

And you will no longer need modems. (The present analog network needs a modem to change digital information into analog).

Today, when you place a telephone call or make a data connection, the connection is end to end. One wire, one connection. The switch sets up a solid line from you to the receiver. This isn't much different than the old tin can and string days. The ISDN connection will be different in that the channel will be dedicated, but there will be multiple channels on one wire. A comparison can be made between the can and string on the one hand, and the mail on the other. The present phone system sets up your own can and string from caller to receiver when you call. The string carries both the call information (who what where) and the voice and/or data. The ISDN call, on the other hand, will be like the mail. The call will be a request package set at 16 kbaud from caller to receiver on the D channel. When the receiver says "I want to talk to you," the B channel will be set up. It's not unlike sending a postcard telling someone to call you, but faster. The B channel (at 64 kbaud) will then be set up on the same wire for the conversation. The conversation will be on a logical channel. The 64 kbaud B channel is that logical channel for the information you then want to send.

This process of calling first, then setting up the channel, means that only when the B channel is needed does it exist. The D channel exists always. This is called *out of band signalling* and was developed for sideband radio. It separates the control signals from the information being transmitted.

What will look different? First, the ISDN phones are different. The phone will turn your voice into a digital signal and then send it. That will mean cleaner sounding lines, somewhat like the difference between CDs and LP records. Also, the ISDN devices will need local power or power from your end. Nowadays power for the telephone comes

from the phone company lines. In the future, if power fails and your phone, computer card or terminal device converter runs on AC, you cannot call out. No doubt there will be batteries in lots of phones, or in the terminal boxes in homes.

Another difference. The phone or computer is seen from the phone switch as a terminal device. This terminal talks to the switch to tell the switch the who-what-when of your calls. The terminal device can be an ISDN phone, a card in your computer or a converter box and regular analog phone. When you call out now you hear the beeps, then the switch sets up the call, and you hear the ring. In the ISDN future, the call will be placed and you will hear only a ring in a much shorter time. All the services the phone companies are now talking about — call forwarding, caller number IDs, conference calls — will be generally available to all ISDN users. Also, the computer or fax user will gain advantages. Fax machines (group 4 standard) will now run at 64K Baud not 9600 Baud, while computers can run two channels at 64 Kbaud apiece or a 128 Kbaud channel. You will be able to talk to someone while sending a fax to them or while having your computers linked. Products like Timbuktu from Farallon, or a background fax program, will be able to run while you talk to the sender of the fax or to the support person looking at your Macintosh screen.

In the future, we see ISDN growth at least in the business world. The BRI is only one of the available options. The PRI or Primary Rate Interface is the other ISDN mode available. It provides one D channel and 23 (US and Japan) or 30 (Europe) B channels. This will give easy access for businesses to high speed telephone network connections. There is a possibility of using the PRI for networks.

Finally, discussion of a higher BISDN standard has begun. The primary push for this expansion is to add capacity for computer networks in the system.

The Status of the BBS

by Brad Templeton

Reprinted from the Computer Underground Digest, Volume 2, Issue #2.05 (September 30, 1990)
MODERATORS: Jim Thomas / Gordon Meyer (TK0JUT2@NIU.bitnet)
USENET readers can currently receive CuD as alt. society. cu-digest.

People keep trying to figure out what an electronic forum (or bulletin board) is in traditional terms — common carrier or

publication.

I think that it is not analogous to any of the old forms, and a new type of law has to be created to apply to it.

There are 4 types of BB today:

A) The completely open BB with no supervision (USENET newsgroup, some BBS operations)
B) The supervised open BB. (most BBS, GEnie, CIS forums, etc.)
C) The heavily supervised BB. (Prodigy, moderated USENET group)
D) The fully edited electronic publication

D is a direct analog of the traditional publication. C is very close, but not quite. A is close to the "common carrier" model, but does not match it exactly. B has little analog in traditional publishing.

All four are of course(*) deserving of constitutional protection of free speech. For all are published forms of expression.

The closest thing to A is common carrier or enhanced service provider status, where the carrier is not liable for what is transmitted. However there are many differences. For one, I have not heard of a *public broadcast* common carrier, where messages are sent to arbitrary members of the public who request the material. The closest analog might be Ham radio, although Hams are licenced and thus not classed as general public. They are

This article does **not** refer to the status of the BMUG BBS. — Ed.

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also restricted in use. Of course *Ham radio* is a thing, not an organization.

In addition, most type A systems do have some controls and checks and balances. They do not have the *service to anybody who asks is mandatory rule* of common carriers.

I would view each individual author as the publisher, and the system owner as a tool in this case. On the other hand, I would support the right of system owners to restrict *who* has access, if not necessarily what they say.

Type B is also a new animal. Such systems are supervised, but supervised after-the-fact. ie. any user can post any message, but the SYSOP/supervisor/moderator can delete things after the fact. The amount of this deletion ranges from almost none to moderate. Sometimes it is there as an option, but never actually practiced. This needs a new type of law.

Type C is very close to a publication, and may not need a new type of law. In this case, all messages must be approved before they go out — ie. they pass through a human being first. This is not too different from a classical publication. However, in most such cases, the editors do not truly act as editors. They merely select material based on appropriateness to a forum. Only because the law requires it do they also sometimes attempt to remove libel and criminal activity. The editors almost never select material to match their own views, and it is not assumed that postings reflect the editor's views.

(Note SYSOPS still have the right to delete material, but not the obligation.)

Thus in A and B it is clear that the author is the publisher and the system is the medium. In C the author and system operator are jointly involved in publication. In D the system operator is the publisher, and the author is just the author.

What new types of law? This we can discuss.

Type A: Authors fully responsible for their postings. No liability for SYSOP unless illegal activity deliberately encouraged. (ie. "The Phone Phreak BBS" might have a liable SYSOP, but "Joe's Amiga BBS" would not be liable if somebody posts a phone credit card number.)

NO complete anonymity. Author's names need not be revealed in the forum itself, but a record should exist for the authorities in case of libel or other illegal activity by an author. The sysop must maintain this list in return for the limit of SYSOP's liability.

Type B: Authors continue to be responsible for their postings. SYSOPS responsible for illegal material which they are aware of but do not delete in a timely fashion. Anonymity possible, if desired.

Type C: Authors responsible together with SYSOPS for postings. If Author warrants to SYSOP that material is legit, most liability goes to Author. SYSOP must not permit any obviously illegal material, and delete any material found to be illegal ASAP.

Type D: Standard publication. No new law.

CPSR Seeks FBI data on Bulletin Board Monitoring

by Computer Professionals for Social Responsibility

Reprinted from the Computer Underground Digest, Volume 2, Issue #2. 01 (Aug 31, 1990)

Computer Professionals for Social Responsibility filed a lawsuit in Federal District Court today to obtain information from the FBI about the monitoring of computer bulletin boards.

Marc Rotenberg, director of the CPSR Washington Office, said that the disclosure of the records would provide a starting point for an informed discussion about the proper scope of computer crime investigations. He said that the FBI's failure to respond to CPSR's original Freedom of Information Act request made the lawsuit necessary.

A computer bulletin board is a publicly accessible computer system that is designed to promote the exchange of views and information. Computer bulletin boards are also used for confidential communications that are directed to one or more specific parties.

The Freedom of Information Act provides a legal right for individuals to obtain records held by government agencies. Under the law, agencies are required to respond within ten working days. When agencies fail to respond within a reasonable period of time, requesters often begin legal proceedings to obtain the information.

CPSR filed the original FOIA request in August, 1989. After a series of letters from CPSR to the FBI failed to produce a response, the FOIA request was considered at a Congressional hearing in February, 1990. A subsequent letter from the Treasury Department revealed that the Secret Service was in fact monitoring computer bulletin boards. The FBI's activities are still not known.

The lawsuit comes at a time of growing concern over the conduct of computer crime investigations directed toward "computer hackers." In one case, charges were dropped against a newsletter publisher after claims that a confidential business document was disclosed turned out to be false. In another case a game manufacturer in Austin, Texas suffered substantial business losses after a Secret Service raid earlier this year, though no charges were ever brought against the owner or his company.

The case is CPSR v. FBI. Civil Action No. 90-2096, U.S. District Court for the District of Columbia, August 28.

For more information contact, the CPSR Washington Office, 1025 Connecticut Ave., NW, Suit 1015, Washington DC 20036 (202) 775-1588 or rotenberg@csli.stanford.edu.

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Prodigy, Problems, and Censorship

by Karl Lehenbauer

Reprinted from the Computer Underground Digest, Volume 2, Issue #2.08 (October 20, 1990)

If sysops were held liable for message content, it would be the end of Usenet. Further, it would have a chilling effect on free speech via bulletin boards. As a sysop, I would have to be very careful to never allow anything out that was in the least bit controversial, and would always want to err on the side of not allowing a message to go out unless I was really sure there was no chance of me getting in trouble for it.

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{The following author responded to a netnote by warning of the problems of holding sysops liable for the message content of their systems. He raises a number of important issues, especially the danger of censorship if corporations or other groups feel the need to restrict the substance on open systems (moderators)}

Shouldn't the poster of the message be accountable for its contents?

Or by this reasoning, shouldn't the phone company have to listen to *all* the phone conversations going on at any time to make sure nothing illicit was being said, done or planned? They tried this in Eastern Europe, you know.

Further, this would be a new and time-consuming burden on sysops and introduce potentially long delays in messages getting out.

If a sysop let a bad message go out and it was gatewayed to a bunch of other machines, or one was forged or somehow illicitly injected into the network, by this reasoning wouldn't the owner/sysops of all the machines the message went to be liable? If that were the case, it would definitely be the end, because nobody has the resources to monitor, for example, all the traffic on the Usenet.

I used Prodigy several times, and it is a heavily censored system, i.e. Prodigy's censors examine every article posted before it goes into the message base, and people on it were complaining that the censors were capricious, arbitrary and would not state reasons why specific articles had been censored.

Not only is there nothing like talk.religion.*, talk.politics.*, soc.motss on Prodigy (they dropped a forum in which fundamentalist Christians and homosexuals and homosexual rights advocates were going at it, although they claimed it was for a different reason), but you can't even mention or talk about most products by name because advertising is a big part of their revenue base (about 20% of your display is permanently dedicated to advertising when using it — ads are continually updated in this area the whole time you're on) and they don't want anyone to get free advertising. Consequently messages of the "Yeah, I bought a Frobozz 917 and it works really well" are censored. If this is IBM's view of the future of personal electronic communications (Prodigy is a joint-venture of IBM and Sears), and there is every reason to believe it is since this is what they chose to provide, it is a bleak future indeed. (The reason they do this, I think, is that Prodigy is supposed to be a *family* system. Under your one account you can set up logins for your other family members. So they don't want anything in there that some kid is going to read. But that restricts everything on the system to a very low common denominator, namely that every message must be so inoffensive that *nobody* is going to be offended by it... and that is censorship.

This occured a few months ago and I am not aware of their current policies. It's also worth mentioning that they're giving away free subscription kits and maybe a month free to everyone who buys a PS/1.

Another complaint I have about their system that isn't relevant to a censorship posting but is still worth mentioning is how incredibly clunky and limiting their interface is. While it is cool that you run their terminal program software when accessing their system (so displays are cached, it displays graphics, etc), the interface is totally closed in terms of being able to get a piece of data off their system and onto your disk. No downloads, no stock quotes pulled into your spreadsheet... You can copy it by hand from your display or print it on your printer, and that's it.

The Politics of the Electronic Communications Privacy Act of 1986

by Bernard Aboba

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The Electronic Communications Privacy Act (ECPA) of 1986 was a landmark piece of legislation which is likely to affect online services and hobbyist bulletin boards for many years to come. Since the ECPA is a complex and often arcane piece of legislation, it is very hard to understand without looking at the history of how it came to be. In understanding the politics of ECPA, this article relies heavily on the transcripts of the House Judiciary Committee Hearings on H.R. 3378, which eventually became the Electronic Communications Privacy Act.

During the hearings on ECPA in 1985-86 only one member of the online service industry, The Source (subsequently acquired by Compuserve) submitted an opinion. Though endorsing the bill, the assessment hinted at possible long term costs imposed by the lack of preemption of state standards. [1] However, this one page assessment hardly made an impression on the hearings compared with the impressive lineup of spokesmen from the ACLU, cellular communications firms, Regional Bell Operating Companies (RBOC's), broadcasting groups, credit and banking firms, and computer and telecommunications industry associations, all lined up in support of the bill.

Only the U.S. Department of Justice, manufacturers of scanning equipment, and amateur radio associations expressed strong reservations about the bill. However, since the passage of ECPA, the long term costs of the legislation and its effects on commercial and hobbyist conferencing systems have become apparent. Ironically, none of these effects were anticipated at the hearings.

Outline of ECPA[2]

Broadened Protection of Communications

The ECPA amended the Omnibus Crime Control and Safe Streets Act of 1968 (which covered wire tapping of common carriers) to prohibit monitoring of all electronic communications systems not designed to be accessible by the public. This includes voice, data, and video on non-public systems, and applies to communications regardless of the mode of transmission.

Search and Seizure

To obtain access to communications such as electronic mail, the government is required to obtain a warrant on probable cause. Law enforcement must also obtain a court order based on reasonable suspicion before obtaining toll records of telephone calls or gaining access to records of an electronic communications system which concern specific communications.

Criminal Penalties

Criminal penalties can result from unauthorized access to computers if messages are obtained or altered. Felony charges can be brought if the violation was committed maliciously or for commercial gain, in which case the act is punishable by up to one year imprisonment and a $250,000 fine. In other cases, a term of imprisonment of six months and a maximum fine of $5,000 is applicable.

Civil Penalties

Civil damages may be pursued for violation of the rights contained in the act.

Disclosure

Electronic communications systems operators may not disclose electronic messages without authorization except in special circumstances.

The Politics of ECPA

The ECPA was supported by the cellular phone, telephone, packet switching, paging, and broadcasting industries; private firms owning large communications networks, miscellaneous computer and communications trade associations, the ACLU and Consumer's Union, and credit bureaus. Law enforcement agencies were supportive, but skeptical. The only vigorous opposition came from amateur radio associations, and manufacturers of scanning equipment which, while protesting loudly, saw few of their recommended modifications enacted into law.

Also playing a role were sponsoring legislators, such as Senator Patrick Leahy of Vermont, and Charles Mathias of Maryland, as well as Representatives Robert Kastenmeier and Carlos Moorhead. Senator Leahy, in his opening remarks at the hearings on the bill, set the stage for the legislation:

"At this moment phones are ringing, and when they are answered, the message that comes out is a stream of sounds denoting ones and zeros... What is remarkable is the fact that none of these transmissions are protected from illegal wiretaps, because our primary law, passed back in 1968, failed to cover data communications, of which computer to computer transmission are a good example. When Congress enacted that law, Title III of the Omnibus Crime Control and Safe Streets Act of 1968, it had in mind a particular kind of communication – voice – and a particular way of transmitting that communication – via a common carrier analog telephone network. Congress chose to cover only the "aural acquisition" of the contents of a common carrier wire communication. The Supreme Court has interpreted that language to mean that to be covered by Title III, a communication must be capable of being overheard. The statue simply fails to cover the unauthorized interception of data transmissions."[3] Senator Leahy also had more practical reasons for supporting the bill. The rapidly growing U.S. cellular communications industry had become alarmed by the ease with which cellular communications could be monitored. Television sets built during the period 1966-1982 were capable of picking up cellular conversations on UHF channels 80-83.[4] This was possible because cellular communications used the same frequency modulation techniques utilized in transmitting television sound. In addition was scanning equipment which, for several hundred dollars, was capable of receiving cellular communications in the 800 Mhz band.[5] During 1985 several incidents threatened to make the vulnerability of cellular communications into front page news. For example, private conversations of state legislators in Austin were intercepted and made available in the public press, with embarrassing consequences.[6]

This ease of reception threatened the viability of the cellular industry. In response, according to Richard Colgan of the Association of North American Radio Clubs, "cellular firms resorted to pervasive misrepresen-

tation of the actual interception vulnerability of cellular. "[7] In fairness to the cellular industry, cellular communications does provide certain inherent protections against interception. For example, since each half of the conversation is transmitted on different frequencies, usually it is only possible to listen in on one side of a conversation. In addition, while it is easy to pick up *some* conversation, it is difficult to pick up a *particular* conversation of interest. Also, the frequencies will shift during passage from one cell to another. However, given the relatively large cell size, frequencies are likely to be stable over the average life of a call. In his remarks, Senator Leahy stated that the ECPA was needed to help the cellular industry get off the ground, and that the American people and American business wanted the ECPA.[8] A more emotional defense was made by John Stanton, Executive VP of McCaw Communications, who stated "The inhibition of the growth of cellular technology and paging technology, forced by the lack of privacy, is unfair." [9]

Law enforcement interests and businesses were also in favor of the bill. In 1986, the nation was just becoming aware of the threat posed by computer crime, and the need for laws allowing prosecution of perpetrators. The ECPA was therefore viewed by elements of law enforcement and business as a vehicle for criminalizing the act of breaking into computers. Businesses such as GTE Telenet, EDS, and Chase Manhattan thus supported the ECPA as a computer crime bill. Telephone companies such as AT&T even attempted to tack on additional computer crime provisions covering breaking into to their switching equipment.

In retrospect, the preoccupation with computer crime distorted evaluations of the ECPA. Computer crime was more effectively addressed by state penal code revisions such as California Penal Code §502 – Computer Crime, and §499c – Trade Secrets. The purpose of ECPA was to insure privacy rather than to define the criminal uses of computers.

The cellular industry had no such illusions. Mr. Philip Quigley, CEO of PacTel Mobil Co., described the economic benefits of ECPA by noting that without legislation, "defending the right [to privacy] could take years of litigation." "Individuals can use scanning devices today... [it is our intent] to merely excise out... the capability that exists today to zone in on the channels and the frequencies that are associated with cellular telephony."[10] Without the ECPA, the industry would have faced incorporation of expensive encryption technology into their systems. For example, John Stanton of McCaw testified that "Encryption devices make it difficult to roam from system to system," generated scratchy sound, and required 30% more investment for the base unit, and 100% for the phone. [11] Mr. Colgan's estimated high grade commercial encryption as costing $40 for the encryption chip (quantity one), plus associated circuitry[12] . In either case, the net cost for several million subscribers was estimated in the tens, if not hundreds, of millions of dollars.

Industry associations such as ADAPSO pointed out the trade benefits of the legislation, since Asia had not developed privacy protection, although Europe had done so. [13] John Stanton of McCaw commented that if the U.S. passed the ECPA, then it would enjoy superior communications privacy to that available in Europe. [14]

Representatives of the nation's amateur radio enthusiasts were among the staunchest opponents of the bill. Richard Colgan of the Association of North American Radio Clubs represented their position. "While we have no animosity towards cellular, we cannot sit idly by while they use their influence to make dubious changes in public policy, largely to benefit their bottom lines..." [15] In response to the concerns of amateur radio enthusiasts, and scanner manufacturers, the interception standard was changed from

"willful" to "intentional," so as to allow for "inadvertent" interceptions.

Manufacturers of scanning equipment were vigorously opposed to ECPA since the use of their devices was restricted by the act. Richard Brown of Regency Electronics, a manufacturer of radio band scanners, argued cellular radio licensees have never had any expectation of privacy, that cellular operators, not the public, should bear the burden of securing cellular communications, and that protecting specific radio frequencies was imprudent.[16]

This last point deserves elaboration. Under ECPA, monitoring of cordless phone frequencies is not prohibited, although it is hard to argue that the average individual's "expectation of privacy" is any different for a cordless phone than it would be for a cellular phone. In fact, an educated individual might even expect *less* privacy for a cellular call, argued Richard Colgan, because the range of cellular communications is so much larger than for cordless phones, thus making interception easier.[17]

Among the most careful analyst of the ECPA was the U.S. Department of Justice, as represented by James Knapp, deputy assistant attorney general of the criminal division. Knapp concurred with the Amateur Radio enthusiasts that cellular and cordless phone technology, as well as tone and voice pagers, were easily intercepted, and therefore could not presume an "expectation of privacy."[18] Knapp also expressed skepticism about the wisdom of criminalizing hobbyist behavior.[19] Knapp was, however, in favor of extending coverage to electronic mail. Finally, he argued for extension of the crimes for which wire tapping could be authorized, beyond those enumerated in Title III. This suggested modification to the act was subsequently incorporated.[20]

In contrast to the detailed arguments submitted by the parties discussed above, the one page letter submitted by The Source had a minor impact at best, suggesting that the ECPA, by not preempting state statutes, could expose the online service industry to an entangling web of federal and state statutes.[21]

Analysis of the Economic Effects of ECPA

The parts of ECPA which have ramifications for online services and hobbyist bulletin boards mostly have to do with access to stored messages. While access to services are often offered via a packet switching network, or could even be achieved via use of cellular modems or other radio transmissions, worries about the privacy of such access are not likely to be major concerns of customers.

An important aspect of ECPA is the presence of both criminal and civil penalties. This provides an important incentive for aggrieved parties to pursue litigation through contingency fee arrangements. The implications of this for the online service business are serious. For example, the fee for sending an EasyPlex message on Compuserve is on the order of a few dollars, depending on the time spent in composing the message. For that fee, Compuserve takes on the responsibility of not disclosing the message, which could conceivably be worth millions to the sender and intended recipient.

Firms Submitting Opinions on H.R. 3378

Phone Companies, Radio, Cellular Hobbyists, Communications

Southwestern Bell, Association of North PacTel Mobile, AT&T, American Radio Clubs, McCaw Communications, Ameritech, American Radio Relay, Motorola, Pacific Telesis, League, Centel Corp., Bell South, Natl Assoc. of Business, Northwestern Bell & Educational Radio, United States Telephone Assoc.

Packet Switching, Misc. Associations, Paging

GTE Telenet, Electronic Mail Assoc., Telocator Network, ADAPSO, National Assoc. of Man, Assoc. of American Railroads, EEE

Computers and Law Enforcement, Online Services, Electronics

Tandy, U.S. Dept. of Justice, The Source

Citizen's Groups, Scanner Man., Firms with Private Networks

ACLU, Dynascan, Chase Manhattan, Consumer's Union, Regency Electronics, EDS, Uniden

Credit Bureaus, Broadcasters

American Credit Services, National Assoc. of Broadcasters, Radio-TV News Directors Association, Satellite TV Industry Assoc., CBS

Source: Hearings, Committee on the Judiciary, House of Representatives, H.R. 3378, ECPA, 99th Congress, No. 50, 1986.

Of course, this burden is not theirs alone. Operators of corporate communications systems (who were big supporters of ECPA) are also likely targets. Indeed, several ECPA suits against employers and municipalities have recently been filed. The potential for litigation also exists for hobbyist systems such as computer bulletin boards.

Government regulations fit into two categories: economic regulation and social regulation. In the economic category are price controls on crude oil and tariffs. Equal opportunity legislation is a regulation of the social type. The cost of a social regulation can be broken down into two parts. One is the cost of complying with the regulation, either by modification of business practices, or payment of imposed penalties; another is the cost of resolving ambiguities in the legislation through establishment of case law. In the case of ECPA, reflection discloses that the establishment of precedent is likely to be the more expensive than compliance. For example, for a service to modify sysop access privileges, and to introduce encryption of private mail and passwords, would probably entail an expenditure on the order of a few million dollars for software development and testing. In contrast, were only 0.01% of Compuserve's subscribers to file an ECPA lawsuit, given 500,000 subscribers and average legal fees and penalties per case of $100,000, the bill would come to over $10 million.

Due to its concentration on cellular industry concerns, the ECPA concentrates more on insuring privacy for users than on limiting the responsibilities of providers. Due to differences between messages in transit and stored messages, cellular firms end up forcing the costs of privacy onto hobbyists and outsiders, while providers of online services are forced to bear these costs themselves. In view of the potentially horrendous litigation burdens, there is a strong incentive to limit the ability of system administrators to read or disclose private mail.

The key to complying with the act is the notion of "expectations of privacy." This notion governs both the legal aspects of ECPA, and determinants of end user satisfaction. Under the ECPA, privacy is only enforced for systems in which users were lead to "expect privacy." Thus a sysop has two alternatives: to explicitly address those expectations via an education campaign, or to play a game similar to the cellular industry, in denying that privacy is a significant issue.

One of the concerns voiced by the cellular industry in backing ECPA was that their budding industry could ill afford the cost of solidifying the right to privacy via litigation or adoption of encryption technology. Yet that is precisely the course that the ECPA has forced on the online service industry. Nor were the concerns of a budding industry entirely genuine. Within the next two years,

the revenues of cellular communication firms will exceed those of all the participants in the information services industry.

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[3] (Hearings, H.R. 3378, Committee on the Judiciary, 99th Congress, No. 50, pg. 2)

[4] Association of North American Radio Clubs, Supplemental Statement to the Hearings on H.R. 3378.

[5] Hearings, pg. 92-95.

[6] ibid.

[7] Hearings, pg. 334.

[8] Hearings, pg. 2

[9] Hearings, pg. 92.

[10] Hearings, pg. 26-29.

[11] Hearings, pg. 92-95.

[12] Hearings, pg. 333.

[13] Hearings, pp. 74-77.

[14] Hearings, pp. 92-95.

[15] Hearings, pp. 147-171.

[16] Hearings, pp. 373-385.

[17] Hearings, pp. 147-171.

[18] Hearings, pp. 223-224.

[19] Hearings, pp. 227.

[20] Public Law 99-508, 99th Congress, The Electronic Communications Privacy Act of 1986.

[21] Hearings, pp. 409.

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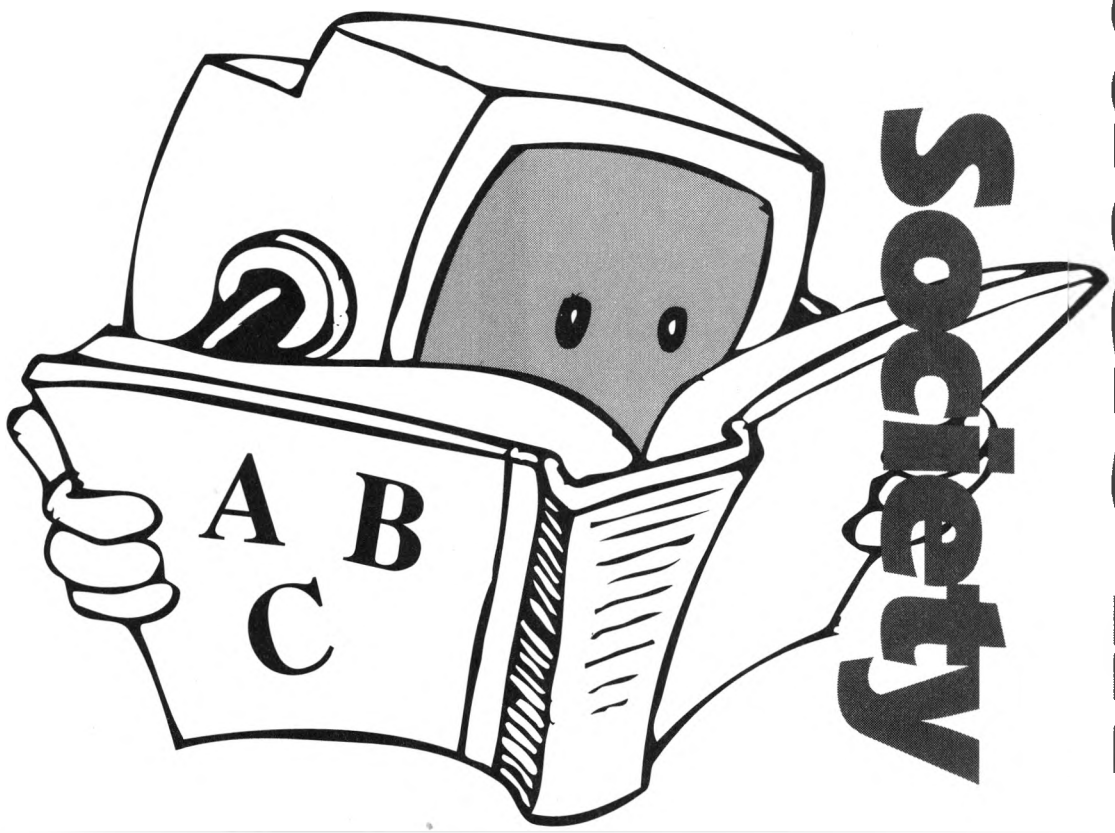

War On Computer Crime Waged With Search, Seizure

by Joe Abernathy
Houston Chronicle
Permission to reprint given

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The government's first assault on computer crime, unveiled with fanfare six months ago, has generated few criminal cases and is drawing allegations that federal

agents are using heavy-handed tactics.

Although only four people have been charged, searches and seizures have been conducted in at least 44 homes or businesses in the crackdown, called Operation Sun Devil.

One prosecutor attributed the delay in filing cases to the vast amount of information that must be sorted. Authorities would not say, however, when or if additional charges might be returned.

Sun Devil, so named because it began in Arizona and targeted an evil that investigators deemed biblical in stature, is held forth as a sophisticated defense of the nation's computer in-frastructure. Computer-related abuses will cost the nation's business community $500 million this year, according to some esti mates.

Operation Sun Devil and several related investigations made public in March have been under way for more than two years. Hundreds of agents from the Secret Service, U. S. attorney's office, the Bell companies, and assorted law enforcement agencies are involved.

But the operation is coming under fire for what critics describe as unjustified searches and seizures of property and electronic information protected by the Constitution.

Among examples they cite:

- An Austin publishing house is clinging to life after Secret Service agents confiscated equipment and manuscripts, leaving behind an unsigned search warrant.
- A Missouri college student faces an extra year in school and $100,000 in legal fees after defending himself from charges that he stole a proprietary document from the telephone company by publishing it in a newsletter.
- The wife and children of a Baltimore corporate computer consultant were detained for six hours while he was interrogated in a locked bedroom and his business equipment was confiscated. With no way to support itself, the family has sunk into poverty.

At a press conference in March, authorities presented Sun Devil as a full-scale response to a serious criminal threat. "The United States Secret Service, in cooperation with the United States attorney's office and the attorney general for the state of Arizona, established an operation utilizing sophisticated investigative techniques," a press release said, adding that 40 computers and 23,000 data disks had been seized in the initial sweep.

"The conceivable criminal violations of this operation have serious implications for the health and welfare of all individuals, corporations, and United States government agencies relying on computers and telephones to communicate," it continued.

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Six months later, most officials are silent about Sun Devil. But at least one principal denies excesses in the operation.

"I am not a mad dog prosecutor," said Gail Thackeray, assistant attorney general for the state of Arizona and the intellectual parent of Operation Sun Devil."(Agents) are acting in good faith, and I don't think that can be said of the hacker community.

"Over the last couple of years, a lot of us in different places — state, federal and local — have been getting hit with a dramatic increase in complaints from computer hacker victims. So in response to that the Secret Service started the Sun Devil investigation trying to find a more effective way to deal with some of this."

Thackeray said the Secret Service, an agency of the U. S. Treasury Department, assumed jurisdiction because computer crime often involves financial fraud. Most of the losses are attributed to stolen long distance service.

"It's not unusual for hackers to reach six figures (of abuse) in one month" at a single business location, she said. "This whole mess is getting completely out of hand."

But computer experts critical of Sun Devil contend the operation also is out of hand. They have rallied behind the banner of the Electronic Frontier Foundation, which contends that computer networks represent a fundamentally new realm of self-expression into which constitutional protection must be extended.

Some visitors to this realm deem it cyberspace, using terminology borrowed from a science fiction genre set in a gritty future in which computer and telephone lines become extensions of one's intellect and even physical being.

Hackers, as those who enter others' computers without authorization are known, are referred to as cyberpunks by some computer network users.

It may have been this connection that drew the Secret Service to the Austin offices of Steve Jackson Games, which early this spring was about to publish something called *GURPS Cyberpunk.*

It is a rule book for a role-playing adventure along the lines of Dungeons & Dragons, played with dice and not computers.

The cover page, however, credits the Legion of Doom, a selfprofessed underground hackers group, for assistance in providing realism. The game's author admits discoursing with the Legion.

This link ensnared the company in the nationwide sweep conducted March 1, when 27 search warrants were executed in 14 cities. A number of cases targeted members of the Legion.

The Secret Service seized all copies of the Cyberpunk manuscript, along with the computers on which it was being stored prior to publication.

"One of the Secret Service agents told Steve Jackson that they thought the book was a handbook for computer crime," said Sharon Beckman of the Boston firm Silverglate & Good, Jackson's attorney. "It looks like what (this) was, in effect, was a prior restraint on protected speech, speech protected by the First Amendment."

Jackson's company, which had revenues of $1. 4 million in 1989, was nearly dealt a death blow by the raid. Cyberpunk was to be its main spring release, but it would have to be rewritten from scratch. Jackson was not allowed access to the reams of information stored on the confiscated equipment.

"We had to lay off eight people, and we had to cut way back on the number of products we were producing," said Jackson, who put the cost of the raid at $125,000. That doesn't include lost revenues, "or the value to the company of the eight (of 17) employees we had to lay off, because I don't know where to start to put a value on that."

Beckman described her client as an ordinary businessman who uses a computer in his business. "He's not a computer hacker. He's not even a particularly sophisticated computer user," she said.

"It was terrifying," Jackson recalled. "I was in the hands of a lot of keen, earnest, sincere people who had no idea what they were doing and who had federal law enforcement powers. "It's frightening that they can do this to innocent people."

No charges have been filed.

Some of the equipment has been returned, but some was damaged beyond repair. Jackson said agents recently acknowledged that some equipment indeed is gone forever.

The Secret Service, Arizona U. S. attorney's office and Justice Department all refused to discuss any specifics of Jackson's case, or any activities associated with Operation Sun Devil. "We're a very efficient organization, and we follow the guidelines set forth by the law," said Michael Cleary, assistant to the special agent in charge of the Secret Service in Chicago, which has jurisdiction in the case. "If we have a signed, sworn affidavit, and a search warrant, we execute that warrant."

Cleary wouldn't say why the search warrant used against Steve Jackson was not signed. A request by Jackson's attorney for more information went unanswered.

Beckman said a raid conducted without a signed warrant would violate Fourth Amendment protection against unwarranted search and seizure.

Mike Hurst, a Steve Jackson Games editor who lost his job to the raid on the company, offered bitter advice: "The Secret Service ought to make some attempt to find out if there's actually a case involved before they begin searches and confiscations of property."

In one incident, the government did file a case, only to abandon it when it fell apart in court. The defendant, Craig Neidorf, is going back to college at the University of Missouri this fall, but his reputation is stained, he's having to repeat his senior year, and he's $100 000 in debt.

An intrusion into the computers of Bell South by a Legion member in 1988 set off much of the activity in Operation Sun Devil, including the case against Neidorf.

While in Bell South's computer, Legion member Robert Riggs found and copied a document describing administrative aspects of the emergency 911 system.

Riggs and associates Franklin E. Darden Jr. and E. Grant, all three of whom are from Georgia, recently pleaded guilty to federal conspiracy charges and await sentencing. Darden and Riggs face up to 5 years in prison and a $250,000 fine. Grant faces up to 10 years in prison and a $250,000 fine.

Neidorf, publisher of Phrack, a newsletter for hackers, was accused of theft for republishing the 911 document stolen by Riggs. Prosecutors stopped the trial after the document was shown to be freely available.

His case received widespread coverage because it raised issues of free speech. Phrack was published electronically via computer networks instead of on paper, and thus did not immediately receive the First Amendment protection that virtually would have been assured a paper document, according to Sheldon Zenner, Neidorf's attorney.

"Going through this last seven months is not something I would wish on my worst enemy," said Neidorf, 20, who faced 31 years in prison. "It devastated my parents. My grandparents, they didn't take it well. They're in their 80s.

"I kind of broke down myself at one point. I don't like to talk about it exactly."

Leonard Rose, a computer consultant in Baltimore, let the Legion forward network mail through his computer, an everyday arrangement on the sprawling Internet research and education network. But because the name of his computer appeared in the group's electronic address, he was portrayed by the government as the mastermind of the group.

"I've lost everything because of it," he said. Business contracts worth $100,000 a year, $70,000 worth of computer equipment used in his business, his top secret clearance, his wife's dream home, their credit rating, cars, are gone. The Roses now live with their two young children in an apartment furnished with two mattresses and a TV.

"I used to look at people in the street and I couldn't understand how they could get there," Rose said, "I couldn't understand how you could sink that low, but now I understand. I understand a lot more now."

He was never charged as part of the Legion of Doom investigation, but during that probe he was found to have received an illicit copy of a computer program that must be licensed from AT&T.

"What Len Rose is accused of turns software piracy into a felony," said John Perry Barlow, a co-founder of the Frontier Foundation. "If the government is prepared to go out and turn everybody who has engaged in software piracy into a felon, it'll make the war on drugs look like a minor undertaking."

Detractors say that the investigative techniques used in Operation Sun Devil are at best rude, at worst illegal. Authorities respond that they are adjusting to a new world.

Most concerns center on bulletin board systems, a frequent point of access into the nation's computer network byways. Locals call the BBS, which then moves private electronic mail and public messages into the public networks, which as a whole are referred to as Internet or simply the matrix.

"The government is seizing electronic mail like crazy, in the sense that it's seizing BBS's and all their contents," Barlow said. "It's the equivalent of seizing post offices and all their contents."

The privacy of electronic mail is protected under the Computer Fraud and Abuse Act of 1986, which is also the law setting forth most of the conditions under which computer hacking can be considered a crime.

"We've seized lots of BBS's," acknowledged Thackeray of the Arizona attorney general's office, although search warrants were obtained only for the owner of each computer, not for each person with electronic mail stored on that computer.

Benjamin Wright, a Dallas attorney who writes and lectures frequently on electronic data interchange, said that surveillance of electronic mail poses serious questions even when conducted properly under the supervision of a court.

"A huge amount of information could build up, so there could be a great mass of information laying at the government's feet," he said. "To tap into all the phone lines of a corporation would be a lot of work, but if there's this database building up of a large part of a company's business, then there's a reason for being a little bit concerned.

"This applies to private people as much as it applies to corporations."

Authorities see the BBS seizures as preventive medicine.

"The only thing I have ever found that has an effect on these kids is to take their computer away," Thackeray said, "It finally sinks in, 'I'm really not going to get this back.'"

But Barlow criticizes that approach. "Essentially what they have done is to fine (the suspect), without conviction, for the entire value of his property," he said, "They're not making arrests. This is turning the whole search and seizure into the punishment."

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Who's Galoob?

by Stephen Howard

1990 was a banner year for copyright controversy; every time you turned around, it seemed another computer company was either going into court or leaving it.

And the arguments over what software is and is not were both plentiful and weird. If the 1970s saw the birth of the personal computer industry, and the 1980s were its childhood, then the 1990s could well be the decade when the industry becomes a self-centered teenager trying to be popular as possible while pondering the fundamental questions of its existence. In this world, think of BMUG as a guidance counselor, helping a confused industry become a productive member of society.

It's my ball; I make the rules.

Being popular is not something that Nintendo of America has to worry about. Approximately 20 million American households own a Nintendo game set. There are dozens of games available that run on the Nintendo system, each of which must contain a special chip patented by Nintendo. Through licensing this chip, Nintendo controls the supply of available games. If you've ever played a video game, you have a pretty good sense of what Nintendo games are like; the fundamental idea of a video game hasn't changed much in the last decade.

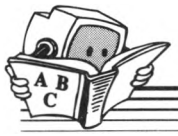
In June, Lewis Galoob Toys, a San Francisco Bay Area company, tried to introduce a Nintendo game cartridge adapter called the Game Genie. This device wasn't a game itself, but it let you alter the behavior of other games — it let you cheat. But before 20 million American households had the opportunity to test their moral fiber, Nintendo got a federal judge to slap a temporary restraining order on the Game Genie, preventing its sale.

As quoted by the San Francisco Chronicle, Judge Robert Schnacke said, "Although the matter is not entirely black and white, Nintendo will prevail... The right to make changes in the game clearly belongs to Nintendo."

Are you scared yet?

At this point you may not find anything foreboding in this string of events. The arguments seems innocuous: It's Nintendo's game system, so only Nintendo can alter the behavior of its games. But if you think about the situation a little more, you might get uncomfortable, and if you're BMUG, defender of computer users' rights everywhere, you'll get involved.

Our usher into this court case was Paul Rogers, a computer-savvy attorney working for Howard, Rice, Nemerovski, Canady, Robertson and Falk, the law firm representing Galoob against Nintendo. Mr. Rogers happens to be a cousin of Scott Beamer, one of BMUG's veteran volunteers and member



of our board of directors. Invited by Scott, Paul came to one of our regular volunteer planning meetings to ask for BMUG's help in Galoob's appeal of the temporary restraining order. At the time, very few of us were even aware of the Galoob case.

Paul reminded us that Nintendo games are just software programs stored in read-only form in cartridges. Galoob's Game Genie lets owners of these game programs alter the way their game software functions. If you push this thought a little further, you see that the Nintendo game system is just a simple kind of computer; the games are its applications. The majority of these games aren't even owned by Nintendo, they're licensed to run on its computer. But since the Game Genie temporarily alters the way these applications run on Nintendo's computer, the judge said that it was likely that such alterations were illegal infringements of Nintendo's copyrights. Think about the contents of your hard disk for a moment. Are you scared yet?

If looks could kill.

There seemed to be something evil brewing in the Nintendo vs. Galoob case, so I was volunteered to look into it and see if BMUG should take a stand. We did. In early August, BMUG wrote up a brief as a friend of the court explaining why, in a broader context, Nintendo's arguments were dangerous to the rights of computer users.

After going over both Nintendo and Galoob's statements and evidence, the argument of central concern to us emerged in all it's frightening dimensions. Section 117 of title 17 of the copyright law has some specific exemptions for software. Here's the actual text of section 117.

> §117. Limitations on exclusive rights: Computer programs
>
> Notwithstanding the provisions of section 106, it is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided:
>
> (1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or
>
> (2) that such new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.
>
> Any exact copies prepared in accordance with the provisions of this section may be leased, sold, or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale, or other transfer of all rights in the program. Adaptations so prepared may be transferred only with the authorization of the copyright owner.

So this is where your right to make a backup of software you own comes from. The language is a little confusing until you remember that unless you write it, you only own a copy of a program. The program itself is owned by the person or company that holds the copyright. This section refers to copies of copies that you own. It may come as a surprise to many that as the owner of a valid copy of a program, you have the right to adapt it as necessary to run on your computer. In fact, the court's interpretation of "essential" has been pretty broad to date, so if the user thinks the modification is essential, the court isn't likely to disagree.

Though it seems like a tempting target, the argument over what's essential and what's not isn't the crux of this case. Instead, Nintendo pointed out quite correctly that the computer program at the heart of a Nintendo game cartridge is one copyrightable work and the audiovisual display shown when playing the game is another. The law recognizes this difference, and the distinction even makes sense; after all, you could write two different computer programs that create identical audiovisual displays. Both

should be copyrightable works. Likewise—and this is a central argument in various "look and feel" cases—if the audiovisual display of a computer program is itself a creative work, you should be able to copyright it regardless of the mechanics behind it.

Based on this distinction, Nintendo took a bizarre but clever tack and argued that a user's right to adapt a computer program doesn't extend to any modification that would change the audiovisual display. Their reasoning was that the display is a copyrightable audiovisual work, so section 117, which refers only to computer programs, simply doesn't apply.

There were other arguments, too, which Galoob and Nintendo have to work out. This arguments will include the question of whether the game as altered by the Game Genie was a "derivative work," and whether any of this mattered since the alterations were temporary and never "fixed" in a permanent state as all copyrightable material must be. But that's the stuff the lawyers are getting paid to haggle over. What got us involved was the court's frightening interpretation of the law that said users couldn't legally alter the audiovisual display of software, even though the change was to a legally owned copy. In essence, we felt that whatever happened to a piece of software after you bought it was your business as long as you didn't distribute or sell the altered version. This common sense position was one we felt the court needed to hear.

This was the first time BMUG had attempted to directly influence an event which seemed so distant from the concerns of the typical computer user. Normally our brand of consumer advocacy is aimed only at our members, but this time we expanded our focus and tried to make a difference before the event could affect the general public. If the current trend in controversial litigation and public policy governing computers continues, we may well find ourselves doing more of this. Therefore, for your edification as computer users and for your information as members, I present the arguments that we came up with for the Ninth Circuit Court of Appeals. The arguments which appear below have been edited to make them more accessible to the casual reader — the actual wording of the motion to file the brief and the brief itself were in proper legal form.

Why BMUG cares about video games

BMUG believes that the federal court's decision in the Galoob case could have far-reaching effects on the uses of personal computer software and hardware. We also believe that the standard practices of computer users and software authors should be considered by the court, and neither Nintendo nor Galoob raises these points adequately in their arguments.

BMUG is a non-profit, educational organization that distributes information and advice to users of certain types of computers. We provide our members with information that they need to use their computers most efficiently and enjoyably. One of our important functions is to try and influence computer vendors to provide products and services needed and desired by our members and to ensure that those products and services are of acceptable quality. We see ourselves — and are recognized as — consumer advocates for computer users.

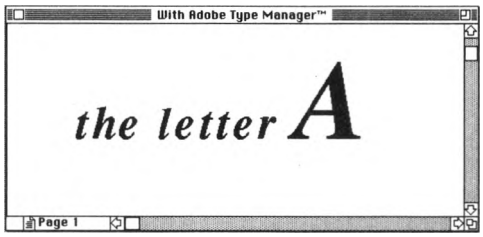
Our 8,000 members use computers with graphical interfaces, e.g. computers whose essential software displays include more than alphanumeric characters. The most popular computer of this type is the Apple Macintosh, although an IBM PC or compatible running Microsoft Windows software also has a graphical interface. BMUG has no relation to Lewis Galoob Toys Inc. or Nintendo of America Inc. Our interest in this case stems from our belief that the interaction between individuals and their computers should be controlled by the individuals. Barring some overriding agreement between the hardware or software vendor and the computer user — a contract or license

agreement that specifically restricts the owner's ability to alter the product — the user should be able to modify the behavior and appearance of the computer display if the purpose of that modification is merely to increase the usefulness or enjoyment of the hardware and software for that individual.

As we understand the arguments in this case, Nintendo contends that its copyrights extend to the interaction between user and computer. This idea is ridiculous. If the court is persuaded by Nintendo's argument, we fear that many kinds of useful and currently popular software could be considered an infringement on someone's copyright. Here are some examples of software programs that alter the audiovisual displays of other software.

Adobe Type Manager

As a part of its graphical interface, the Macintosh can display different typefaces on screen. The quality of these typeface displays varies and tends to be particularly bad with large characters, such as those found in newspaper headlines. Adobe Type Manager (ATM), from Adobe Systems Inc., is a software add-on that improves the way Macintosh programs display typefaces on screen. For computer users preparing documents that will eventually be printed, ATM is beneficial because it makes the computer display represent the printed version more accurately. For other users, ATM just makes letters look better on screen.



The software of the Macintosh operating system is divided into two parts; one is a collection of resources for programs (the System file) and the other controls the organization and display of files stored in the computer's permanent memory. This latter part is called the Finder. Certain characteristics of the Finder can be altered by a program called Layout, which was written by Michael O'Connor and released into the public domain.

Layout is a tool for users who would like the Finder to operate or look differently than it does normally. For example, when a user tries to delete certain kinds of files on the Mac, the Finder requests confirmation before carrying out the command. With Layout, the experienced user can turn off this safety mechanism and not be bothered while working. Similarly, the Finder allows a user to assign colors to files, as an organizational aid, but does not allow the user to choose the palette of colors available for this function. With Layout, the user can modify the selection of colors available to include more pleasant or more distinct tones.

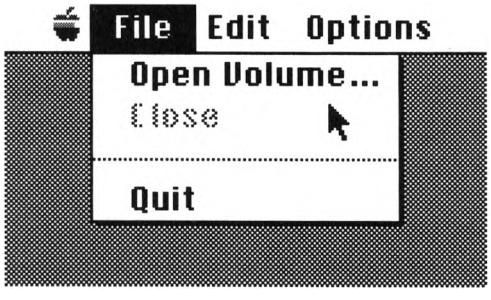
Both ATM and Layout are widely used. The usefulness of what they do is demonstrated by the fact that Apple plans to incorporate many of the features of both programs in a future version of the Finder and other parts of the Mac operating system.

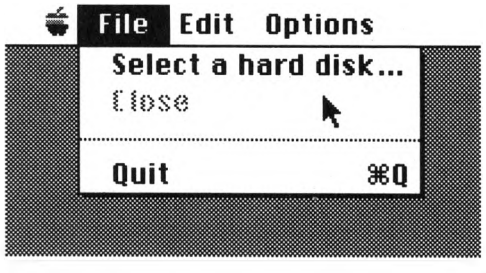
These examples highlight a common occurrence in the personal computer industry: someone creates a software add-on or utility that alters the appearance or behavior of an existing program; users respond positively to the new options made available by the add-on; and the creator of the affected program incorporates these options into a future version. This cycle of extension and

imitation is a mechanism through which many improvements in existing software are introduced and popularized.

ResEdit

Apple Computer Inc. licenses and sells a program called ResEdit for distribution to users and programmers. This program is capable of altering virtually every component of every program that runs on Apple's Macintosh computer. An application program not accessible to ResEdit usually is considered a poorly written piece of software. Common uses of ResEdit include changing the wording of commands inside application programs and customizing the letters that must be typed to execute these commands. Used improperly, ResEdit can irreparably damage a Macintosh software program; used correctly, it empowers users to modify programs to suit themselves. In fact, every function available in Layout can be accomplished by an expert through ResEdit, though Layout makes these modifications safer and easier.





outSPOKEN

Often the priorities of the software author or vendor are not the same as those of users. When users have tools to modify a piece of software, they can get more effective use of it. We think users should have the freedom to make those changes. Here's an example of where this capability becomes critical. Berkeley Systems Inc. sells a software add-on called outSPOKEN that reads aloud the words shown on a computer screen. When this piece of software is running, the computer literally speaks to the user. The program is used by people with poor eyesight who may not be able to see the software commands as they are displayed on screen in various programs. outSPOKEN adds significantly to the audiovisual display of other programs—most don't have any provision for sound, much less speech. Since visually handicapped users don't constitute a large market, virtually no software vendors take the needs of the seeing-impaired into account. Berkeley Systems' add-on makes other vendors' software usable by a whole group of people who would otherwise be unable to consider it.

Wizardry

One of the most popular commercial games available in the early days of personal computing was Wizardry from Sir-Tech. This engaging adventure game challenged users to accomplish tasks similar to those found in many Nintendo games, though the audiovisual displays possible on personal computers in the early 1980s were much cruder than those found today. But users experienced the same frustrations then as now, and software programmers filled their need for assistance. A slew of "wizardry editors" appeared, allowing users to modify Wizardry in ways not permitted by the basic game itself. According to the founders, Sir-Tech did not approve of or license these programs in any way, yet the company recognized users' rights to modify their copies of the Wizardry game using third-party programs, such as WizPlus from Data Most, Wizmate Megaman from Computer Configurations, Wizmaker from ARS Publica-

tions, and others. Sir-Tech produced sequels to Wizardry and adapted the game to many different computer systems in the years after the introductions of these editors. This deflates Nintendo's assertion that by letting users cheat, the Game Genie would reduce demand for Nintendo games and cause Nintendo financial hardship.

Windows 3.0

Alterations to the audiovisual display of an application program can occur at a more basic level as well. Instead of one program modifying a few parts of another, the whole environment in which a computer program runs can change around it. Microsoft Corp.'s Windows 3.0 software is an example of this kind of change.

Windows 3.0 is a very substantial add-on to Microsoft's MS-DOS operating system. The majority of programs written to run under MS-DOS will work if Windows 3.0 is also running, but the audiovisual display of these programs will be altered significantly. One of the desirable features of Windows 3.0 is its ability to confine another program's display to a small, movable rectangle shown on the computer screen, called a "window."

Programs running under MS-DOS typically fill the entire screen when running; Windows 3.0 restricts the program to a user-selected area. A user can also run more than one program at the same time in different areas of the screen, much like an advanced television set allows a user to watch multiple channels on the same screen. At the user's discretion, program displays can even be shrunk down to the size of a postage stamp, in order to reveal other programs on screen. Windows 3.0 dramatically changes the way users interact with application programs, and it is fast becoming one of the most popular programs ever written for any computer.

Furthermore, the ability to run MS-DOS application programs in a specified area on screen is not unique to Windows 3.0. Competing programs for IBM PCs and compatibles offer the same function. On the Macintosh, this capability is provided by a Insignia Solutions' program, SoftPC. MS-DOS programs can also be run in conjunction with Open Look and Motif, two versions of the Unix operating system.

These are just a few examples of software whose sole function is to alter the audiovisual displays of other programs; we could easily provide more. This category of software is very common in the personal computer world. BMUG is afraid that if the court upholds Nintendo's argument, all these programs could be considered illegal. Many software companies that currently provide programs to enhance personal computers might fear that their products infringed on someone's copyright, and users would be deprived of tools they now depend on. As an organization representing what we believe to be the best interests of these users, we urge the court to consider the interaction between computer and user as outside the realm of copyright protection.

Not yet the end.

At the last minute we threw in one more example: Don Brown's Startup document (INIT) called Vaccine. By putting a little hypodermic needle up on screen, Vaccine alters the audiovisual display of whatever program happens to be running. We figured that even if the judges on the appeals court had never used computers, they must have heard of computer viruses. But, as far as we know, the court never even read our brief. Though we submitted it as quickly as possible, the court has not yet told us whether it will accept or reject the brief. Experienced lawyers have told us they've never heard of a circumstance where the court didn't even respond to a motion to file an amicus curiae; apparently we discovered a bug in the system.

One part of the legal system worked without a hitch, though: Ruth Herring. A San Francisco-based attorney with broad experience in computer licensing, Ruth worked

Stephen Howard likes a good argument now and then, that's why he's been hanging around BMUG for so long.

with BMUG preparing the brief on a pro bono basis. She worked long hours, over weekends, and around my work schedule to bring this whole thing together in a remarkably short time. Ruth was terrific.

As of this writing, the appeals court also has not decided on the injunction against the sale of Galoob's Game Genie. That means it stays in force and you cannot buy a Game Genie for the holidays in the United States, though you can in Canada. The real trial over the alleged copyright violations is scheduled to start in April, 1991. Both Nintendo and Galoob's attorneys have seen our brief, so I hope our point of view will come out in the trial.

In the final version of the brief, we included several example articles from back issues of the BMUG Newsletter that told people how to alter software for their own benefit. It was the process of finding those articles that was the most illuminating part of this whole exercise: I learned that BMUG actually had a position on an interpretation of the law and that we've held this position for years without even knowing it. In the future, I hope that BMUG as an organization and as a collection of individuals will pursue this kind of user advocacy in the industry and in the courts. Issues of this sort are simply too important to ignore.

Creating Junk Mail with Lotus MarketPlace

by Herb Daing

It looks as if anyone with $700, a CD ROM drive, and postage money will soon be able to produce targeted junk mail

using Lotus' newest product, Lotus MarketPlace. The minimum mailing size for bulk mail is 200 pieces, so with MarketPlace and 30 dollars postage you too can be in the targeted mail marketing business. In the article that follows, I will describe the basic features of MarketPlace, and will also tell you how to remove your name from most mailing lists if you want to stop receiving junk mail.

An Overview of MarketPlace...

There are two large databases which you can use with Lotus MarketPlace: a database of households and a database of businesses. The household database comes on 9 CDs and lists around 80 million names. This database contains information about each person's name, address, age, gender, marital status, income, life style, purchase propensity, and dwelling type. The business database comes on one CD and lists around 7.5 million business. This database contains information about each company's name, address, telephone number, type of business, sales, employees, executive titles and names, and a key contact for the company. You cannot use MarketPlace to look up information about a specific person or business, but you can do a search on general criteria to help you locate members of any target popu-

lation. The interface is simple and works very smoothly.

The data used by MarketPlace are supplied by Equifax Marketing Decision Systems and Trinet. When you purchase MarketPlace, you are entitled to access up to 5,000 names from these data, and you can then use these names over and over. If need more than 5,000 names, you can contact Lotus and get a code which will allow you to access more names from the database. The concept is much like the postage meter — you start with credit for a certain amount of names, and as you retrieve names, you use up your credit. When use up your entire allocation of 5,000 names, you then need to buy a new block of credit which you can use to retrieve additional names.

Lotus will also be offering an update service for the databases. This service will periodically mail out updates to both the business and the household databases.

A Few Facts about Direct Marketing

After contacting Equifax and Trinet directly, I found that they also market mailing lists independently of Lotus. These two services will rent or sell you names from their lists for a set period of time. The minimum purchases are not that high, $500-$1,000 for 500-5,000 names. The advantage of MarketPlace is that you can play with the list and fine-tune your selections before purchasing it.

If you're like most people, you do not want junk mail. If this is true, you should get your name off the marketer's mailing lists now, before the lists are set in plastic on CD Rom.

To remove your name from about 75% of all mailing lists, write to:

Mail Preference Service
Direct Marketing Association
11 West 42nd Street
PO Box 3861
N.Y., N.Y. 10163-3861

This will remove you from their mailing lists immediately, and it will eventually remove you from all lists sold, including the lists used by MarketPlace. Of course, you should also write to anyone who sends you junk mail you do not want, and you will be removed from their lists.

One trick which people use to find out where a direct marketers get your name from is to use a different middle initial each time you subscribe to a magazine or register for a conference. Then when you get new junk mail, you can trace it back to its source by the middle initial it uses.

Other Resources

Lotus MarketPlace
Lotus Development Corp.
Cambridge, MA
list price $695

Equifax Marketing Decision Systems, Inc.
National Decision Systems
539 Encinitas Blvd
Encinitas, California 92024-9007
619/942-7000

Trinet, Inc.
9 Campus Drive
Parsippany, N.J. 07054
201/267-3600

"Hacker" Cases and the Pollard Case:

a Reader's Perspective

by J. D. Abolins

First Publication Rights Submission to BMUG Newsletter 1 Nov 90

As I started studying the Neidorf case, Operation Sun Devil, the Steve Jackson case and other recent hacker cases, *I noticed strong parallels with the Pollard case* which I have been following since 1985. These parallels point to crucial issues regarding information, government policies, and law enforcement. I do not claim any special inside knowledge. Like Will Rodgers, I mainly know what I read in the papers. This article, therefore is a work, of my perceptions as an avid reader.

Opposing "Truths"

The most striking parallel in these cases is the great gap in the views of *the Truth* between the defendants and the prosecutors. Yes, in legal cases, there is always some controversy but in both the *hacker* and the Pollard cases, the controversy extends far beyond the usual issues of guilt and innocence. The controversy extends into deeper issues of human relations with institutions, raising uncomfortable questions, and drawing people into opposing camps.

Information: Who Controls It?

An intelligence sharing agreement between the United States and Israel raises the question of whether or not the information Jonathan Pollard shared with Israel was not information that rightfully should have been shared with Israel in the first place. The *hacker* ideology questions the institutional sequestering of information. It doesn't take a paranoid mind, given recent institutional coverups, to be concerned about how information is handled and by whom.

But then comes the countering concern about security and the concept that the truth is so precious that sometimes it has be protected by *a bodyguard of lies*. Is complete information transparency really desirable? Most individuals want to have a measure of privacy as a part of human dignity. But what about institutions? What kind of information should be *hidden for the public good and safety*?

This last question haunts us. Information is not 100% neutral or inert. As a raw material for human sentient activity, it can be used or misused. Information builds upon information. So, it is easy to infer all kinds of consequences from any item of information. Such inferences complicate intelligent decisions about information access.

The Federal prosecutors of the Pollards claimed that the information given by the Pollards, among many other things, could provide clues to US intelligence assets and methods. Even information not likely to disclose assets and methods was claimed to be *dangerous* because it would give Israel some advantage in relation to her enemies, an advantage undermining the policies of some Government officials to manipulate

Israel. Withheld, the information would hurt Israel and cost Israeli lives.

Similar inferences have been made about the power of the information passed to Craig Neidorf. Bell South and others have claimed that the internal memo published in *Phrack* could lead to disruption of the 911 emergency system and possible deaths. Even as the contents of the Bell South internal memo have been shown to be innocuous, some claim that even knowledge of company "buzzwords" and other bureaucratic information could be used to wheedle out more critical information. The claims that Steve Jackson Game's GURPS Cyberpunk game was a *manual for computer crime* are based upon far flung extrapolation of its contents. By such inferences, murder mystery novels are dangerous training manuals for mayhem.

Lest anyone think the above example ridiculous, that no society could extrapolate that far, history provides several examples. In Saddam Hussein's Iraq, one cannot have a typewriter without government permit. After all, the reasoning goes, Saddam Hussein overthrew his predecessors by writing revolutionary tracts on his typewriter. Might not somebody do the same to him? Until recently, Soviet citizens had no access to telephone directories, apparently to make it harder for people to form networks. (The telephone directories that were finally made available to Moscow residents several years ago ominously lists the KGB's 24-hour number at the beginning of the directory.) Under various slavery systems in history, suppression of education among slaves has been a popular control method.

Friend, Foe, or Prankster?

The issues of identify, misrepresentation, and misinterpretation weave in and out of these cases. Despite the fact that information disclosed by the Pollards did go to Israel, some of their opponents dwelled on the question, What if the affair had been a *false flag* operation by the KGB or some other hostile intelligence service posing as Israelis? If identification of people and organizations can be so hard to establish in face to face contacts, how much harder in the electronic environment? Often, there is no recognition of the different types of computer trespassers, distinguishing curious explorers from saboteurs. The result both may be treated as threats of same magnitude. The skills used for exploration overlap with the skills that can be used to alter or destroy systems. Except for tracking the intruder's activities or finding the person at the other end of the modem connection is discovered, it is difficult to tell who's who.

The Role of Political Climate

The political and social climate surrounding these cases have provided the ripe conditions for their prosecution. For the Pollards, 1985 — *the Year of the Spy* — was the worst time to caught in an espionage case. A slew of reported espionage cases, including the Walker case and the scandal at the US Embassy in Moscow, stirred up fears among Americans about the rampant security breaches. So by the time the Pollards were arrested, the Federal prosecutors faced hardly any immediate public outcry over the extremely harsh handling of the Pollards, despite the special circumstances of their case. In fact, the Federal prosecutor may have felt more obliged to *get tough* with the Pollards to show the public that the Government was fighting back against espionage.

In 1990, the easing of US — Soviet tension has also diminished public concerns about espionage. Terrorism, once another major popular American fear, had also lost its *bogeyman* status. In this vacuum of departing fears, the fear of the unknowns embodied in computerization of the modern world is surfacing by the departure of other fears. Despite the greater public exposure to computing, computers are still "magic" for much of the public, somehow having a power over people's finances, jobs, education, legal

status, and even their physical lives. The spread of computers into schools and homes has diminished the Orwellian *1984* fears of institutional computer abuse and begotten the fear of the *rogue* computerist who has harness the *magic*.

Just as the public accepts law enforcement agencies' harsh techniques for drug raids and counter- terrorism operations as necessary for public safety, there is the likelihood of acceptance of similar methods for *hacker* raids such as Operation Sun Devil. After all, much of the public has no idea about the nature of "hacking" and its diversity. Thus, the threat perception is magnified and the acceptable means to deal with "hackers" escalate. Except for the mysterious death of one German computerist, the *war against hackers* has not yielded a body count — yet.

Where Do We Go From Here?

The information questions will not be resolved overnight. Human civilization has only begun to seriously deal with questions which, due to technological limitations, had been *merely academic*. How these questions are answered will drastically shape the world's future. To start the answer process, people must see that the questions are there. Education to raise awareness is critical. So is the encouragement for people to think through the consequences of policies and actions, not to be cowed by superficial claims.

In our legal system, we need a wise handling of laws concerning information. The precepts underlying laws for older technologies need to be adapted for the issues raised by new technologies instead of old laws themselves being misapplied. This requires cooperation between law professionals and the computing community.

California Computer Abuse Law revisited

From the Computer Underground Digest
Volume 2, Issue #2.04 (September 23, 1990)

In a previous issue of Computer underground Digest (1.17, File 5), the California revision of Title 13 Sections 502 and 502.7 was described as an example of the potential dangers in *cracking down* on computer hackers. Bold-Italics indicate emphasis that we have added.

Title 13 Sect. 502.7:

> "(a) A person who, knowingly, willfully, and with intent to defraud a person providing telephone or telegraph service, avoids or attempts to avoid, ***or aids abets or causes another to avoid*** the lawful charge, in whole or in part, for telephone or telegraph service by any of the following means is guilty of a misdemeanor or a felony, as provided in subdivision (f):"

There follows a list of proscribed means, including charging to non-existence credit cards and tampering with telecom facilities, most of which seem reasonable. One, however, strikes us as potentially dangerous. 502.7 (b) states:

> "Any person who ***makes, possesses, sells, gives, or otherwise transfers to another, or offers or advertises any instrument, apparatus, or device with intent to use it*** or with knowledge or reason to believe it is intended to be used to avoid any lawful telephone or telegraph toll charge or to conceal the existence or place of origin of destination of any telephone or telegraph message; or (2) sells, gives, or otherwise transfers to another, or advertises plans or instruments for making or assemblying

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> an instrument, apparatus, or device described in paragraph (1) of this subdivision with knowledge or reason to believe that they ***may be*** used to make or assemble the instrument, apparatus, or device is guilty of a misdemeanor or a felony, as provided in subdivision (f)."

The broad wording of this laws would make it illegal to possess information on *boxing* or to possess an autodialer. The problematic language here is "with knowledge or reason to believe it is intended to avoid..." We have seen from Operation Sun Devil that, contrary to normal Constitutional procedures, the burden of proof of innocence lies on the *suspect*. A BBS operator who puts boxing files in a text section, knowing that some users might try to apply the knowledge illegally, could, under the current philosophy of the Secret Service and others, be indicted. This may seen a remote possibility, but we have seen from recent activity that we simply cannot rely on good faith interpretations of the law by some prosecutors, especially those willing to distort *evidence* to strengthen a case. Further, the term *may be* is unnecessarily vague. Generally, the term means "expressing ability, permission, freedom, possibility, contingency, chance, competence..." (Chambers 20th Century Dictionary, 1972: p. 811). An automobile dealer presumably knows that a customer *may* use a car in the commission of a crime, or *may* drive the car while intoxicated. Yet, it is absurd to consider holding the dealer criminally liable for the sale in the event the customer *may* be able to do so. Our point is that the language of this Bill seems unnecessarily restrictive and open to potential abuses by law enforcement agents, especially those willing to seek *test cases* to test the laws. Californians should write their legislators with their concerns in hopes that the language would be revised in a way that allows legitimate targeting of *real* computer criminals, but reduces the potential for using the law to persecute those for whom less stringent and more productive responses are appropriate.

Just as chilling is subdivision (g) of this passage. The language in (g) specifies:

> Any instrument, apparatus, device, plans, instructions, or written publication described in subdivision (b) or (c) may be seized under warrant or incident to a lawful arrest, and, upon the conviction of a person for a violation of subdivision (a), (b), or (c), the instrument, apparatus, device, plans, instructions, or written publication may be destroyed as contraband by the sheriff of the county in which the person was convicted or turned over to the person providing telephone or telegraph service in the territory in which it was seized.

This section seems reasonable to the extent that it specifies confiscation of an illegal *instrument* upon conviction. The problem, however, is the apparent tendency in some states to seize equipment even when indictments are not forthcoming. The wording would seem to offer incentives to agents to secure an arrest as a means to confiscate equipment, even if charges were subsequently dropped. Again, this may seem far-fetched, but the undeveloped state of computer law and the actions of prosecutors in early 1990 leave little room for confidence in good faith interpretation of the wording. Take an example: If a person were to be indicted for posession of an auto-dialer (which generally has but one purpose) pursuant to a search warrant for unrelated reasons, computer equipment could be confiscated. We have seen from the actions of agents that the definition of *equipment* is quite broad, and can include printers, modems, answering machines, or even books and pictures. If the person is convicted of possession, then the equipment could be lost. Again, *common sense*, that sixth sense that tells us the world is flat, would tell us that such a possibility seems absurd. However, the zealousness of Sun Devil agents reduces the absurdity to the level of a

could be, and it is because of their actions that we are concerned with this wording.

Title 13, Sect 502 (h) provides that:

> Any computer, computer system, computer network, or any software or data, owned by the defendant, which is used during the commission of any public offense described in this section any computer, owned by the defendant, which is used as a repository for the storage of software or data illegally obtained in violation of this section shall be subject to forfeiture.

The chilling aspect of this passage is that is says nothing about conviction. Does *subject to forfeiture* mean that, even if found innocent, one could lose their equipment? A good faith reading suggests that the intent of the language at least implies that a conviction must occur. But, in reading the indictments of Craig Neidorf and Len Rose (neither from California), we should be cautious before assuming that prosecutors will not resort to creative interpretations to file an indictment. We should also be aware that at least one California prosecutor has published statements advocating an aggressive enforcement policy against *hackers* and has advocated responses that he acknowledges are probably unconstitutional.

Given the broad interpretation of the law, and considering how companies such as BellSouth have grossly inflated the value of products (such as in the Neidorf case, in which information available for $13 was valued, according to the first indictment, at $79,449, and in the second indictment reduced to $23,900). Given their public statements in the media and the hyperbole of indictments, we cannot assume *good faith* prosecution by law enforcement, and the language of the California Act seems wide open for abuse.

Our purpose is not simply to criticize this law, but to use it as an icon for other state and federal law. Some states are revising their laws, and it is crucial that computerists be aware of, and offer input into, their wording to assure that legitimate enforcement needs are met and potential for abuse or misuse removed. There must be a balance, and without public input such a balance is unlikely. We find Jim Warren's article (File 5, following) significant. It suggests that computerists introduce this as an issue in political campaigns as a means of educating both the public and the politicians.

What is CPSR?

by Computer Professionals for Social Responsibility

It's come to our attention lately that there are a lot of BMUGers who don't know about Computer Professionals for Social Responsibility (CPSR). We know that many of you are socially responsible beings, and that many of you are computer professionals. So, we provide you here with a quick introduction to CPSR.

CPSR is a national, non-profit, public interest organization of computer professionals and other people dedicated to promoting the responsible use of computer technology, and ensuring that information technology play a positive role in society. Unlike many other professional organizations in the field, our focus is on the public interest, not on the exclusive interests of the profession. CPSR sponsors the Directions and Implications of Advanced Computing (DIAC) conference, which will next be in Berkeley in the Spring of 1992.

Although CPSR began as an organization concerned primarily with the use of computers in the arms race, CPSR is also involved with such issues as:

- Computers and Civil Liberties: Should electronic bulletin boards be protected under the 1st Amendment?
- Computers and International Security: How can computers help to stablize or destablize international relations?
- Computers and Privacy: What constraints should be placed on computer databases and policy to ensure privacy?
- Computers and Education: What is the role of computers in education? What are the approriate uses?
- Computers and the Environment: Can computers help protect the environment? What choices do we have?
- Computers and Workplace: How should we design software? Should computers be used to monitor worker productivity?
- Computers and the 21st Century: What role should computers play in the 21st century? Can we help to shape a vision?

CPSR has 21 chapters throughout the country in Acadiana, La; Austin, TX; Berkeley, CA; Boston,MA; Chicago, IL; Denver-Boulder,CO;Los Angeles, CA; Madison, WI; Maine; Milwaukee;WI; Minnesota; New Haven, CT; New York, NY; Palo Alto, CA; Philadelphia, PA; Pittsburgh, PA; Portland, OR; San Diego, CA; Santa Cruz, CA; Seattle, WA; and Washington, D.C. There are also various cities throughout the country where there is a concentration of members, but no formal chapter as of yet.

For those of you in the East Bay or San Francisco, the Berkeley Chapter of CPSR meets on the second Wednesday of every month. We have a steering committee meeting the last Wednesday of every month, which is where we plan future meetings and deal with chapter business. (Our meetings used to be on Thursday nights but we switched to Wednesdays so as to not conflict with BMUG meetings!)

Readers interested in joining CPSR or getting names of local contacts in areas other than Berkeley should contact

CPSR,
P.O. Box 717
Palo Alto, CA 94301

415/322-3778.

Some of the Berkeley chapter meetings so far have been:

- A Perspective on Electronic Publishing, Constitutional Rights, and Hacking,. *Dorothy Denning.*
- Privacy, Computers, and the Law: A Review of the FBI's National Crime Information Center, *videotape of panel discussion from CPSR Annual Meeting, November 1988*
- The Imminently Threatening Computerized Nuclear Hair Trigger, *Cliff Johnson*
- Social Implications of Computer Security, *Peter Neuman*

- Autonomy, Community, Excellence: Human Goals in Computer Education, *Brian Harvey*
- Re-Thinking Computer Systems Devlopment, *Lucy Suchman*
- Living in the Future with Knowledge Navigator, *videotape of panel discussion from CPSR Annual Meeting, November 1989*
- Losing Control: A Look at Accidental Nuclear War, *screening of television program*
- My Life and Career in the Music Industry(How to Make a Living With Computers Without Working for the Military), *Andy Moorer*
- Computers, Perestroika, and Glasnost in the Soviet Union, *Gary Chapman and Lee Felsenstein*
- The Limits of Calculative Rationality, *Hubert L. Dreyfus*
- Artificial Intelligence and Responsibility, *Terry Winograd*

We welcome your participation at both our main meetings and our steering committee meetings. For specifics, contact Judy (jstern@garnet.berkeley.edu, 415/652-8362) or Patti (schank@garnet.berkeley.edu, 415/654-8931)

Caller Identification:

More Privacy or Less?

by Jeff Johnson
Computer Professionals for Social Responsibility (CPSR)/Palo Alto

Which privacy right is more important: the right to prevent your phone number from being disclosed to others, or the right to know who is calling you? As telephone companies across the U.S. prepare to introduce a service called Caller Identification (Caller ID), and as opponents of the service raise concerns about the service, that is how the issue is being framed.

Caller ID works as follows: whenever a phone whose owner subscribes to the service is called, it is provided with the number of the calling phone. What the called phone *does* with that number depends, of course, upon what it is *designed* to do with it. Most of the telephones in use now couldn't do anything with the information. Most Caller-ID-compatible phones would simply show the calling number in a small display while the phone is ringing and during the ensuing conversation. Fancier phones would compare the number to a stored list, either to determine the caller's name so they can display that instead of the number or to decide how to handle the call, e.g. ignore, activate phone-recorder, play caller-specific message, ring phone. Even fancier phones, integrated into computer systems, might send the number to a data-base, either to add it to a list of callers or to retrieve other information about the caller.

An important point about Caller ID is that whether your phone number is given to people you call depends upon whether *they* subscribe to the service, not whether you do.

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Assessing the impact of telecommunications technology and policy upon individual privacy is an important part of CPSR's program. CPSR has participated in a White House Advisory Panel on Telecommunications Privacy and has provided expert witnesses for approval proceedings on Caller ID in Maryland and the District of Columbia. CPSR has recommended that phone subscribers be allowed to decide when to disclose their phone numbers and that they should not pay any additional cost to protect this right. This principle follows from the Code of Fair Information Practices, which was developed to protect computer privacy.

Subscribing lets you see the numbers of people who call you.

Caller ID has been available in private PBX phone systems for internal calls for several years. It was made available to many businesses offering "800" numbers two years ago. Within the past year, phone companies have begun to make Caller ID available to residential customers.

Proponents of Caller ID maintain that knowing who is calling is useful information that can help prevent phone calls from being as intrusive as they now are. They argue that if someone interrupts you by calling you, you have a right to know who they are. Furthermore, they claim, you have a right to know *before* you pick up the phone, so you can decide if you want to let that person interrupt you. Also, Caller ID is touted as a way to reduce the incidence of obscene or harassing calls, since the perpetrators of such calls rely upon anonymity.

Apart from allowing telephone users to control telephone interruptions and deterring crank calls, proponents claim that Caller ID has other advantages:

1. It allows people to have phones that can be "programmed" to handle calls from different people differently. For example, calls from relatives can be sent to the phone recorder, calls from friends can ring through, calls from fellow bridge club members can be greeted by a message stating the place and time of the next meeting, and calls from others can be ignored entirely.
2. It enables *Call last caller back* for cases in which, e.g., the phone rings while you are in the shower, or is ringing when you come home with your arms full of grocery bags.

Critics of Caller ID claim that its benefits are outweighed by its violation of everyone's right to control who they give their phone number to. They argue that if someone wants your number, they should ask you for it rather than getting it without your consent. Caller ID opponents point to a number of legitimate types of phone calls for which anonymity is important: e.g., people calling AIDS or child-abuse hot lines or police tip lines, social workers and medical workers calling patients from home, probation officers calling their charges, people calling businesses who don't want their number added to a telemarketing database.

Caller ID opponents also claim that the benefits of Caller ID are less than claimed anyway, because:

1. Caller ID may result in an overall *increase* in unwanted calls, since many businesses will use it to compile lists of customers for use in telemarketing.
2. Having Caller ID won't really reduce the intrusiveness of phone calls. Once you've stopped what you were doing to go to the phone to see if you want to answer it, you've already been interrupted. Furthermore, it is difficult to tell from a displayed number who is calling, especially quickly enough to decide what to do before the caller gives up; people with number-display phones will end up answering most calls anyway.
3. Most of the benefits of Caller ID can already be achieved in other ways, without revealing anyone's number without their consent. Phone calls needn't be so intrusive. Our compulsion to answer the phone when it rings is what should be changed: people should feel freer to get unlisted numbers and screen calls through answering machines. Crank and obscene calls can be traced — and "Call last caller back" can be provided — without revealing phone numbers.

Caller ID advocates rebut that the benefits of the service are real, and that those who oppose it are just "technological reactionaries" out to impede progress. Some Caller ID proponents counter critics concerns about privacy by claiming that the service doesn't violate anyone's privacy rights, since *the phone company*, not the phone user, "owns" phone numbers.

Caller ID critics respond that pro-Caller-ID arguments are just a smoke-screen: Caller

ID's true benefactors, and its main promoters, are businesses who see it as a valuable tool for collecting telemarketing data, telephone service companies who will sell the service to businesses, and telephone equipment manufacturers who look forward to a situation in which most of the phones in the country are suddenly obsolete.

This is an issue over which there has been, and will continue to be, heated debate. One indication that Caller ID is a hot topic is that it was the subject of a recent discussion on Nightline, Ted Koppel's talk show that deals, it seems, exclusively in controversial issues. Similarly, a column on the subject by William Safire in the New York Times [11 Dec '89] drew many letters to the editor. Phone companies reportedly realized that some people, especially those with "unlisted" numbers, would not appreciate their numbers being disclosed by Caller ID. Nonetheless, phone companies did not anticipate that the controversy over the service would reach the level it has. As has been said; Caller ID has been available for various types of non-residential phone service for quite a while. Only after phone companies began to introduce it for residential customers did significant opposition begin to appear.

Though Caller ID has been approved for imminent availability by Public Utility Commissions (PUCs) in some areas of the U.S. and is already available in others (e.g., New Jersey), approval has rarely been uncontested. Consumer advocacy organizations, state public advocate offices, state legislators, and the ACLU are usually among the vocal critics of Caller ID. In areas where opposition is strong, PUCs have delayed approval or imposed complicated restrictions and conditions. In California for example, the the state assembly required that a blocking option be provided so that callers can prevent their numbers from being displayed. Pennsylvania's PUC [also] required a blocking option, but yielding to phone company arguments that having such an option defeats the purpose of Caller ID, restricted its use to law enforcement officials, crime witnesses, victims of violent crimes, and others who deal with violent people. That decision has been appealed in the Pennsylvania courts by the state Consumer Advocate. Meanwhile, Senator Kohl (D-WI), has introduced a bill in Congress to require a blocking service nationwide. In the face of such complicated regulations, some phone companies have delayed introducing or even asking for permission to introduce Caller ID until the debate cools down.

Clearly, the idea of revealing callers' phone numbers without their consent bothers some people, and clearly, the prospect of not having the benefits of Caller ID disturbs others. The arguments for and against Caller ID raise several issues. In what follows, I explore several in detail.

First, who really owns the rights to people's telephone numbers? Certainly, phone companies can and do distribute people's phone numbers in the various directories that they provide. This includes reverse-directories, which customers (usually businesses) can purchase to determine peoples' names and addresses from their phone numbers. Some directories are or soon will be available in online form, facilitating their use in the construction of data-bases.

But what about "unlisted" numbers? Doesn't the extra money a person pays for an unlisted number buy them exclusive distribution rights? Yes and no. Whether phone companies distinguish unlisted numbers from listed ones for the purposes of Caller ID and withhold disclosure of the unlisted ones will be determined by public and company policy. Most phone companies would prefer that so-called unlisted numbers *not* be treated any differently than listed ones with respect to Caller ID.

If you give the number of a friend to a third party without asking your friend, your friend may not like it, but you certainly would not have violated any law. A phone company's disclosure of your number to a third party is, it might be argued, exactly

analogous. However, it might also be argued that automatic or electronic disclosure of phone numbers differs from person-to-person disclosure and *is* illegal. For example, in Pennsylvania, the ACLU argued that Caller ID violates that state's wiretap law, which forbids the use of devices that capture a caller's phone number. One might also base a counter-argument not on the medium of disclosure but rather on who obtains the number. For example, one might claim that, while phone companies can distribute directories to customers, they cannot sell lists of phone numbers to private investigators.

So what are we to conclude about who "owns" a phone number? Just that the issue is yet unresolved.

Next, let's examine the claimed benefits of Caller ID and the corresponding counter claims of critics. For individuals (i.e., residential phone users), the question is: would having Caller ID enhance their privacy?

New Jersey Bell reports that the number of obscene and threatening phone calls reported has dropped sharply since Caller ID was introduced last year. Though it is in their interest to be able to report this, it is a result that presumably could be checked. Suppose it's true. Suppose the reduction in such calls is 80%. Given that such calls represent a tiny fraction of all annoying calls, how important is it compared to an increase, say of 25%, in telephone sales solicitations, which Caller ID may well bring about?

What about Caller ID's other claimed benefits? One thing that clearly limits Caller ID's usefulness to individuals is the fact that phone numbers identify telephones, not people. Knowing the number of the calling phone doesn't necessarily tell you who is calling. Crank callers could simply use pay phones to avoid detection or worse, *other* people's phones, getting *them* into trouble. You would have no way of knowing who at a given number was calling you. If you had Caller ID, you might reject a call from your spouse stranded somewhere with a broken-down car or from someone who has discovered your injured child because you didn't recognize the number.

Another limiting factor on the overall benefit of Caller ID is the cost of the service and of the necessary equipment. Though a small percentage of the population can afford fancy phones that automatically categorize numbers and handle them accordingly, most Caller-ID-compatible phones in people's homes will be of the simplest variety. Phones or phone attachments that do anything more than show the calling number will be extremely rare. So, for most people, the usefulness of Caller ID will depend upon how quickly and easily they can decide, based upon a displayed number, what to do when the phone rings. I find the arguments of critics, that by the time you're looking at the number you've already been interrupted and that there will be a temptation to answer most calls "just in case", quite convincing. If they are right, Caller ID will, for average citizens, be little more than a toy that lets them answer the phone: "Hello, Fred."

One thing proponents and critics of Caller ID agree upon are its telemarketing benefits; what they disagree upon is whether those benefits are worthwhile. According to Calvin Sims, a columnist for the New York Times, "Phone companies expect the service to be popular among businesses, which could link it to computer files of customer records." This expectation is already being realized: as stated earlier, many businesses offering "800"-numbers already have Caller ID, allowing them to capture the numbers of callers. It will soon be available for companies offering "900"-services. Sims says that "American Express uses an A.T.&T. system that lets service representatives see a caller's name and account information before they answer the phone." With reverse-directories available from phone companies, businesses could use captured phone numbers to fill-out their marketing data-bases.

Having examined the benefits of Caller ID, let's consider some alternatives that might

provide some of the same benefits without the cost to public privacy.

New Jersey Bell says that Caller ID reduces obscene and harassing calls, and calls it "the best technology" for doing so. Is it? Do you really want to know the phone number of your obscene caller? Your phone company can certainly get it if you report the disturbance. Shouldn't they and the police be the ones to handle such problems? I'm suggesting that obscene and threatening calls would also be "sharply reduced" if phone companies simply encouraged people to report them and made it clear that tracing numbers is trivial. Even if tracing numbers is not trivial now, any phone company that can provide Caller ID could *make* it trivial.

Setting aside criminal calls, let's consider alternative ways to reduce "ordinary" unwanted calls. I'll begin with ways that are available now, then discuss some possible technological alternatives to Caller ID.

As stated earlier, we can simply not answer the phone when we don't want to be disturbed. Bells can be muted; telephones can be unplugged; answering machines work as well when we are at home as when we are out. If those solutions seem dishonest or require too much behavior change on our part, consider this: for $69.95, you can buy a device that adds a 3-digit access code to your phone number; those who don't know it hear a perpetually-ringing phone and you hear nothing. Arguably, such a device is *better* than Caller ID: people you give your code to can get through regardless of what phone they call from, people who don't have your code can't, you avoid repeated interruptions of having to decide when the phone rings whether to answer or not, and no one's phone number is disclosed without their consent.

Now, let's turn to alternatives that don't yet exist, but could. I mentioned earlier that one limitation on the value to residential users of Caller ID is that phone numbers identify phones and not people. Another problem is that phone numbers are effective, unique links to households and data-records, which is why they are valuable to businesses and other potential violators of privacy. How might we fix these problems?

First, let's consider what *not* to do. The way the problem is stated, "phones identify phones and not people", suggests that a solution might be to create a system in which phone numbers identify people, not phones. In other words, each person has a unique ID number, encoded on a card that can be inserted into telephones. In addition to being used for billing and other purposes, a caller's unique phone-ID number is provided to whoever that person calls. High-tech, eh? People you call get more accurate information about who is calling them. This is in fact the direction that many phone pundits expect the phone system to go. It is also precisely the wrong thing to do, because it increases the invasiveness of the technology to individual privacy, and it keeps the burden of decoding numbers on phone-call recipients.

A much better solution is to change the system so that people are identified to callers only by name, not by a unique ID number. Names are more useful than any sort of number to residential call-recipients because they can be used directly. They are also *less* effective as links back to the caller because they aren't unique. The names "Fred J. Smith", or even "Caitlin D. Fitzsimmons", by themselves, would not be as useful to businesses as those peoples' phone numbers. Two ways to supply names to call recipients come to mind:

1. Use the above-mentioned card, but send just the caller's name, not their account number, to the recipient.
2. Allow callers to "type" their names (or abbreviations thereof) using the key pad when they make a call.

Method 1 makes giving a false name more difficult, but some people may not like even their name being given to the callee. Method 2 has the advantage that supplying one's name is optional, but lends itself to the use of

false names (though that could be handled by agreement between callers and callees, e.g., nick-names).

The final alternative retains Caller ID's reliance on phone numbers, but avoids revealing them to callees and simplifies answer-decisions as well. It is based upon the following premises: 1) residential phone call recipients want the calling number only to determine which of a few categories it falls into so they (or their phone) can decide what to do with the call, and 2) incoming calls can be categorized automatically without disclosing the caller's number.

Earlier, I alluded to fancy phones that could match calling numbers against lists pre-programmed by the owner, thereby determining automatically which call-handling category the call falls into (e.g., friend, relative, co-worker, other). The two main problems with such phones are that they: 1) would be far too expensive for most people, and 2) need the caller's phone number in order to be able to categorize it. Suppose, however, that the categorization were built into the phone system rather than being performed by the user or the user's phone: you give the phone company your lists so they can tell you what categories calls to you are in without telling you the number. With such a system, the equipment cost to users would be much less, residential users would get what they really want: the call's category, and no one's number is disclosed.

This scheme is admittedly far-fetched, especially compared to the other alternatives. It also has its own privacy-related problems. However, as a thought-experiment, it does illustrate that what residential phone users really want is the category, not the number.

Of course, none/neither of these alternatives satisfy the requirements of businesses. They aren't trying to screen calls. They want a link back to the caller. They need the phone number, i.e., Caller ID itself. The question is: do we want them to have it?

Though the Caller ID debate has been framed as a matter of whether callers' right to keep their numbers private is more important that callees' right to know who is calling them, that is not the real issue. The issue has to do with the relative costs and benefits of the service for individuals and for business. I have argued that the benefits of Caller ID for residential phone users are minimal. For them, Caller ID is a naive attempt to solve a difficult problem. Trying to decide how to handle calls based upon the number of the calling phone is like trying to filter out commercials automatically when recording TV shows based upon the volume level (this has been tried): you still hear a lot of commercials and you miss a lot of program material. I expect that many people will subscribe to the service, naively believing that it will help them screen calls, and then realize that it doesn't and that they are wasting their money.

While the benefits of Caller ID for individuals are doubtful, the costs are not: widespread dissemination of personal information in a society where such information is increasingly traded as a commodity. For businesses, the situation is reversed: the benefits of Caller ID are great while the only costs are money. All citizens pay the privacy cost while only businesses get real benefits.

I would urge phone companies, in their roles as public utilities, to place less weight upon the needs of businesses and more on those of their residential customers. I would urge them to seek alternatives to Caller ID that are more useful to the public and less invasive to individual privacy.

Note: Marc Rotenberg, Director of CPSR's Washington Office and of CPSR's program on Privacy and Civil Liberties, also contributed to this article.

For more info:

Readers interested in joining CPSR should contact CPSR, P.O. Box 717, Palo Alto, CA 94301 (415/322-3778).

Readers interested in more information about Caller ID and telecommunications privacy should contact the CPSR Washington Office, 1025 Connecticut Ave., NW, Suite 1015, Washington DC 20036 (202/775-1588).

For more information about the Palo Alto chapter of CPSR, contact Clifford Johnson (415/723-0167).

For more information about the Berkeley chapter of CPSR, or to be added to our mailing list, contact Judy (jstern@garnet.berkeley.edu, 415-652-8362) or Patti (schank@garnet.berkeley.edu, 415-654-8931).

Concerning Hackers Who Break into Computer Systems

by Dorothy E. Denning

Presented at the 13th National Computer Security Conference, Washington, D.C., Oct. 1-4, 1990.

A diffuse group of people, often called "hackers," has been characterized as unethical, irresponsible, and a serious danger to society for actions related to breaking into computer systems. This paper attempts to construct a picture of hackers, their concerns, and the discourse in which hacking takes place. My initial findings suggest that hackers are learners and explorers who want to help rather than cause damage, and who often have very high standards of behavior. My findings also suggest that the discourse surrounding hacking belongs at the very least to the gray areas between larger conflicts that we are experiencing at every level of society and business in an information age where many are not computer literate. These conflicts are between the idea that information cannot be owned and the idea that it can, and between law enforcement and the First and Fourth Amendments. Hackers have raised serious issues about values and practices in an information society. Based on my findings, I recommend that we work closely with hackers, and suggest several actions that might be taken.

1. Introduction

The world is crisscrossed with many different networks that are used to deliver essential services and basic necessities — electric power, water, fuel, food, goods, to name a few. These networks are all publicly accessible and hence vulnerable to attacks, and yet virtually no attacks or disruptions actually occur.

The world of computer networking seems to be an anomaly in the firmament of networks. Stories about attacks, breakins, disruptions, theft of information, modification of files, and the like appear frequently in the newspapers. A diffuse group called "hackers" is often the target of scorn and blame for these actions. Why are computer networks any different from other vulnerable public networks? Is the difference the result of growing pains in a young field? Or is it the reflection of deeper tensions in our emerging information society?

There are no easy or immediate answers to these questions. Yet it is important to our future in a networked, information-dependent world that we come to grips with them. I am deeply interested in them. This paper is my report of what I have discovered in the early stages of what promises to be a longer investigation. I have concentrated my attention in these early stages on the hackers themselves. Who are they? What do they say? What motivates them? What are their values? What do that have to say about public policies regarding information and computers? What do they have to say about computer security?

- From such a profile I expect to be able to construct a picture of the discourses

> in which hacking takes place. By a discourse I mean the invisible background of assumptions that transcends individuals and governs our ways of thinking, speaking, and acting. My initial findings lead me to conclude that this discourse belongs at the very least to the gray areas between larger conflicts that we are experiencing at every level of society and business, the conflict between the idea that information cannot be owned and the idea that it can, and the conflict between law enforcement and the First and Fourth Amendments.

But, enough of the philosophy. On with the story!

2. Opening Moves

In late fall of 1989, Frank Drake (not his real name), editor of the now defunct cyberpunk magazine W.O.R.M., invited me to be interviewed for the magazine. In accepting the invitation, I hoped that something I might say would discourage hackers from breaking into systems. I was also curious about the hacker culture. This seemed like a good opportunity to learn about it.

The interview was conducted electronically. I quickly discovered that I had much more to learn from Drake's questions than to teach. For example, he asked: "Is providing computer security for large databases that collect information on us a real service? How do you balance the individual's privacy vs. the corporations?" This question surprised me. Nothing that I had read about hackers ever suggested that they might care about privacy. He also asked: "What has (the DES) taught us about what the government's (especially NSA's) role in cryptography should be?" Again, I was surprised to discover a concern for the role of the government in computer security. I did not know at the time that I would later discover considerable overlap in the issues discussed by hackers and those of other computer professionals.

I met with Drake to discuss his questions and views. After our meeting, we continued our dialog electronically with me interviewing him. This gave me the opportunity to explore his views in greater depth. Both interviews appear in "Computers Under Attack," edited by Peter Denning [DenningP90].

My dialog with Drake increased my curiosity about hackers. I read articles and books by or about hackers. In addition, I had discussions with nine hackers whom I will not mention by name. Their ages ranged from 17 to 28.

The word "hacker" has taken on many different meanings ranging from 1) "a person who enjoys learning the details of computer systems and how to stretch their capabilities" to 2) "a malicious or inquisitive meddler who tries to discover information by poking around ... possibly by deceptive or illegal means ..." [Steele83]. The hackers described in this paper are both learners and explorers who sometimes perform illegal actions. However, all of the hackers I spoke with said they did not engage in or approve of malicious acts that damage systems or files. Thus, this paper is not about malicious hackers. Indeed, my research so far suggests that there are very few malicious hackers. Neither is this paper about career criminals who, for example, defraud businesses, or about people who use stolen credit cards to purchase goods. The characteristics of many of the hackers I am writing about are summed up in the words of one of the hackers: "A hacker is someone who experiments with systems... (Hacking) is playing with systems and making them do what they were never intended to do. Breaking in and making free calls is just a small part of that. Hacking is also about freedom of speech and free access to information — being able to find out anything. There is also the David and Goliath side of it, the underdog vs. the system, and the ethic of being a folk hero, albeit a minor one."

Richard Stallman, founder of the Free Software Foundation who calls himself a

hacker according to the first sense of the word above, recommends calling security-breaking hackers "crackers" [Stallman84]. While this description may be more accurate, I shall use the term "hacker" since the people I am writing about call themselves hackers and all are interested in learning about computer and communication systems. However, there are many people like Stallman who call themselves hackers and do not engage in illegal or deceptive practices; this paper is also not about those hackers.

In what follows I will report on what I have learned about hackers from hackers. I will organize the discussion around the principal domains of concerns I observed. I recommend Meyer's thesis [Meyer89] for a more detailed treatment of the hackers' social culture and networks, and Meyer and Thomas [MeyerThomas90] for an interesting interpretation of the computer underground as a postmodernist rejection of conventional culture that substitutes "rational technological control of the present for an anarchic and playful future."

I do not pretend to know all the concerns that hackers have, nor do I claim to have conducted a scientific study. Rather, I hope that my own informal study motivates others to explore the area further. It is essential that we as computer security professionals take into account hackers' concerns in the design of our policies, procedures, laws regulating computer and information access, and educational programs. Although I speak about security-breaking hackers as a group, their competencies, actions, and views are not all the same. Thus, it is equally important that our policies and programs take into account individual differences.

In focusing on what hackers say and do, I do not mean for a moment to set aside the concerns of the owners and users of systems that hackers break into, the concerns of law enforcement personnel, or our own concerns as computer security professionals. But I do recommend that we work closely with hackers as well as these other groups to design new approaches and programs for addressing the concerns of all. Like ham radio operators, hackers exist, and it is in our best interest that we learn to communicate and work with them rather than against them.

I will suggest some actions that we might consider taking, and I invite others to reflect on these and suggest their own. Many of these suggestions are from the hackers themselves; others came from the recommendations of the ACM Panel on Hacking [Lee86] and from colleagues.

I grouped the hackers' concerns into five categories: access to computers and information for learning; thrill, excitement and challenge; ethics and avoiding damage; public image and treatment; and privacy and first amendment rights. These are discussed in the next five subsections. I have made an effort to present my findings as uncritical observations. The reader should not infer that I either approve or disapprove of actions hackers take.

3. Access to Computers and Information for Learning

Although Levy's book "Hackers" [Levy84] is not about today's security-breaking hackers, it articulates and interprets a "hacker ethic" that is shared by many of these hackers. The ethic includes two key principles that were formulated in the early days of the AI Lab at MIT: "Access to computers — and anything which might teach you something about the way the world works — should be unlimited and total," and "All information should be free." In the context in which these principles were formulated, the computers of interest were research machines and the information was software and systems information.

Since Stallman is a leading advocate of open systems and freedom of information, especially software, I asked him what he means by this. He said: "I believe that all generally useful information should be free. By 'free' I am not referring to price, but rather

to the freedom to copy the information and to adapt it to one's own uses." By "generally useful" he does not include confidential information about individuals or credit card information, for example. He further writes: "When information is generally useful, redistributing it makes humanity wealthier no matter who is distributing and no matter who is receiving." Stallman has argued strongly against user interface copyright, claiming that it does not serve the users or promote the evolutionary process [Stallman90].

I asked hackers whether all systems should be accessible and all information should be free. They said that it is OK if some systems are closed and some information, mainly confidential information about individuals, is not accessible. They make a distinction between information about security technology, e.g., the DES, and confidential information protected by that technology, arguing that it is the former that should be accessible. They said that information hoarding is inefficient and slows down evolution of technology. They also said that more systems should be open so that idle resources are not wasted. One hacker said that the high costs of communication hurts the growth of the information economy.

These views of information sharing seem to go back at least as far as the 17th and 18th centuries. Samuelson [Samuelson89] notes that "The drafters of the Constitution, educated in the Enlightenment tradition, shared that era's legacy of faith in the enabling powers of knowledge for society as well as the individual." She writes that our current copyright laws, which protect the expression of information, but not the information itself, are based on the belief that unfettered and widespread dissemination of information promotes technological progress. (Similarly for patent laws which protect devices and processes, not the information about them.) She cites two recent court cases where courts reversed the historical trend and treated information as ownable property. She raises questions about whether in entering the Information Age where information is the source of greatest wealth, we have outgrown the Enlightenment tradition and are coming to treat information as property.

In a society where knowledge is said to be power, Drake expressed particular concern about what he sees as a growing information gap between the rich and poor. He would like to see information that is not about individuals be made public, although it could still be owned. He likes to think that companies would actually find it to their advantage to share information. He noted how IBM's disclosure of the PC allowed developers to make more products for the computers, and how Adobe's disclosure of their fonts helped them compete against the Apple-Microsoft deal. He recognizes that in our current political framework, it is difficult to make all information public, because complicated structures have been built on top of an assumption that certain information will be kept secret. He cites our defense policy, which is founded on secrecy for military information, as an example.

Hackers say they want access to information and computing and network resources in order to learn. Both Levy [Levy84] and Landreth [Landreth89] note that hackers have an intense, compelling interest in computers and learning, and many go into computers as a profession. Some hackers break into systems in order to learn more about how the systems work. Landreth says these hackers want to remain undiscovered so that they can stay on the system as long as possible. Some of them devote most of their time to learning how to break the locks and other security mechanisms on systems; their background in systems and programming varies considerably. One hacker wrote "A hacker sees a security hole and takes advantage of it because it is there, not to destroy information or steal. I think our activities would be analogous to someone discovering methods of acquiring information in a li-

brary and becoming excited and perhaps engrossed."

We should not underestimate the effectiveness of the networks in which hackers learn their craft. They do research, learn about systems, work in groups, write, and teach others. One hacker said that he belongs to a study group with the mission of churning out files of information and learning as much as possible. Within the group, people specialize, collaborate on research projects, share information and news, write articles, and teach others about their areas of specialization. Hackers have set up a private system of education that engages them, teaches them to think, and allows them to apply their knowledge in purposeful, if not always legal, activity. Ironically, many of our nation's classrooms have been criticized for providing a poor learning environment that seems to emphasize memorization rather than thinking and reasoning. One hacker reported that through volunteer work with a local high school, he was trying to get students turned on to learning.

Many hackers say that the legitimate computer access they have through their home and school computers do not meet their needs. One student told me that his high school did not offer anything beyond elementary courses in BASIC and PASCAL, and that he was bored by these. Hans Huebner, a hacker in Germany who goes by the name Pengo, wrote in a note to the RISKS Forum [Huebner89] : "I was just interested in computers, not in the data which has been kept on their disks. As I was going to school at that time, I didn't even have the money to buy my own computer. Since CP/M (which was the most sophisticated OS I could use on machines which I had legal access to) didn't turn me on anymore, I enjoyed the lax security of the systems I had access to by using X.25 networks. You might point out that I should have been patient and waited until I could go to the university and use their machines. Some of you might understand that waiting was just not the thing I was keen on in those days."

Brian Harvey, in his position paper [Harvey86] for the ACM Panel on Hacking, claims that the computer medium available to students, e.g., BASIC and floppy disks, is inadequate for challenging intellectual work. His recommendation is that students be given access to real computing power, and that they be taught how to use that power responsibly. He describes a program he created at a public high school in Massachusetts during the period 1979-1982. They installed a PDP-11/70 and let students and teachers carry out the administration of the system. Harvey assessed that putting the burden of dealing with the problems of malicious users on the students themselves was a powerful educational force. He also noted that the students who had the skill and interest to be password hackers were discouraged from this activity because they also wanted to keep the trust of their colleagues in order that they could acquire "superuser" status on the system.

Harvey also makes an interesting analogy between teaching computing and teaching karate. In karate instruction, students are introduced to the real, adult community. They are given access to a powerful, deadly weapon, and at the same time are taught discipline and responsibility. Harvey speculates that the reason that students do not misuse their power is that they know they are being trusted with something important, and they want to live up to that trust. Harvey applied this principle when he set up the school system.

The ACM panel endorsed Harvey's recommendation, proposing a three-tiered computing environment with local, district-wide, and nation-wide networks. They recommended that computer professionals participate in this effort as mentors and role models. They also recommended that government and industry be encouraged to establish regional computing centers using donated or re-cycled equipment; that stu-

dents be apprenticed to local companies either part-time on a continuing basis or on a periodic basis; and, following a suggestion from Felsenstein [Felsenstein86] for a "Hacker's League," that a league analogous to the Amateur Radio Relay League be established to make contributed resources available for educational purposes.

Drake said he liked these recommendations. He said that if hackers were given access to powerful systems through a public account system, they would supervise themselves. He also suggested that Computer Resource Centers be established in low-income areas in order to help the poor get access to information. Perhaps hackers could help run the centers and teach the members of the community how to use the facilities. One of my colleagues suggested cynically that the hackers would only use this to teach the poor how to hack rich people's systems. A hacker responded by saying this was ridiculous; hackers would not teach people how to break into systems, but rather how to use computers effectively and not be afraid of them. In addition, the hackers I spoke with who had given up illegal activities said they stopped doing so when they got engaged in other work.

Geoff Goodfellow and Richard Stallman have reported that they have given hackers accounts on systems that they manage, and that the hackers have not misused the trust granted to them. Perhaps universities could consider providing accounts to pre-college students on the basis of recommendations from their teachers or parents. The students might be challenged to work on the same homework problems assigned in courses or to explore their own interests. Students who strongly dislike the inflexibility of classroom learning might excel in an environment that allows them to learn on their own, in much the way that hackers have done.

4. Thrill, Excitement, and Challenge

One hacker wrote that "Hackers understand something basic about computers, and that is that they can be enjoyed. I know none who hack for money, or hack to frighten the company, or hack for anything but fun."

In the words of another hacker, "Hacking was the ultimate cerebral buzz for me. I would come home from another dull day at school, turn my computer on, and become a member of the hacker elite. It was a whole different world where there were no condescending adults and you were judged only by your talent. I would first check in to the private Bulletin Boards where other people who were like me would hang out, see what the news was in the community, and trade some info with people across the country. Then I would start actually hacking. My brain would be going a million miles an hour and I'd basically completely forget about my body as I would jump from one computer to another trying to find a path into my target. It was the rush of working on a puzzle coupled with the high of discovery many magnitudes intensified. To go along with the adrenaline rush was the illicit thrill of doing something illegal. Every step I made could be the one that would bring the authorities crashing down on me. I was on the edge of technology and exploring past it, spelunking into electronic caves where I wasn't supposed to be."

The other hackers I spoke with made similar statements about the fun and challenge of hacking. In SPIN magazine [Dibbel90], reporter Julian Dibbell speculated that much of the thrill comes from the dangers associated with the activity, writing that "the technology just lends itself to cloak-and-dagger drama," and that "hackers were already living in a world in which covert action was nothing more than a game children played."

Eric Corley [Corley89] characterizes hacking as an evolved form of mountain climbing. In describing an effort to construct a list of active mailboxes on a Voice Messaging System, he writes "I suppose the main reason I'm wasting my time pushing all these buttons is simply so that I can make a list of

something that I'm not supposed to have and be the first person to accomplish this." He said that he was not interested in obtaining an account of his own on the system. Gordon Meyer says he found this to be a recurring theme: "We aren't supposed to be able to do this, but we can" — so they do.

One hacker said he's now working on anti-viral programming; it was almost as much fun as breaking into systems, and that it was an intellectual battle against the virus author.

5. Ethics and Avoiding Damage

All of the hackers I spoke with said that malicious hacking was morally wrong. They said that most hackers are not intentionally malicious, and that they themselves are concerned about causing accidental damage. When I asked Drake about the responsibility of a person with a PC and modem, his reply included not erasing or modifying anyone else's data, and not causing a legitimate user on a system any problems. Hackers say they are outraged when other hackers cause damage or use resources that would be missed, even if the results are unintentional and due to incompetence. One hacker wrote "I have ALWAYS strived to do NO damage, and to inconvenience as few people as possible. I NEVER, EVER, EVER DELETE A FILE. One of the first commands I do on a new system is disable the delete file command." Some hackers say that it is unethical to give passwords and similar security-related information to persons who might do damage. In the recent incident where a hacker broke into Bell South and downloaded a text file on the emergency 911 service, hackers say that there was no intention to use this knowledge to break into or sabotage the 911 system. According to Emmanuel Goldstein [Goldstein90], the file did not even contain information about how to break into the 911 system.

The hackers also said that some break-ins were unethical, e.g., breaking into hospital systems, and that it is wrong to read confidential information about individuals or steal classified information. All said it was wrong to commit fraud for personal profit.

Although we as computer security professionals often disagree with hackers about what constitutes damage, the ethical standards listed here sound much like our own. Where the hackers' ethics differ from the standards adopted by most in the computer security community is that hackers say it is not unethical to break into many systems, use idle computer and communications resources, and download system files in order to learn. Goldstein says that hacking is not wrong: it is not the same as stealing, and uncovers design flaws and security deficiencies [Goldstein89].

Brian Reid, a colleague at Digital who has spoken with many hackers, speculates that a hacker's ethics may come from not being raised properly as a civilized member of society, and not appreciating the rules of living in society. One hacker responded to this with "What does 'being brought up properly' mean? Some would say that it is 'good' to keep to yourself, mind your own business. Others might argue that it is healthy to explore, take risks, be curious and discover." Brian Harvey [Harvey86] notes that many hackers are adolescents, and that adolescents are at a less advanced stage of moral development than adults, where they might not see how the effects of their actions hurt others. Larry Martin [Martin89] claims that parents, teachers, the press, and others in society are not aware of their responsibility to contribute to instilling ethical values associated with computer use. This could be the consequence of the youth of the computing field; many people are still computer illiterate and cultural norms may be lagging behind advances in technology and the growing dependency on that technology by businesses and society. Hollinger and Lanza-Kaduce [HollingerLanza-Kaduce88] speculate that the cultural normative messages about the use and abuse of computer technology have been driven by the adoption of criminal laws in the last decade. They also speculate that

hacking may be encouraged during the process of becoming computer literate. Some of my colleagues say that hackers are irresponsible. One hacker responded "I think it's a strong indication of the amount of responsibility shown that so FEW actually DAMAGING incidents are known."

But we must not overlook that the differences in ethics also reflect a difference in philosophy about information and information handling resources; whereas hackers advocate sharing, we seem to be advocating ownership as property. The differences also represent an opportunity to examine our own ethical behavior and our practices for information sharing and protection. For example, one hacker wrote "I will accept that it is morally wrong to copy some proprietary software, however, I think that it is morally wrong to charge $6000 for a program that is only around 25K long." Hence, I shall go into a few of the ethical points raised by hackers more closely. It is not a simple case of good or mature (us) against bad or immature (hackers), or of teaching hackers a list of rules.

Many computer professionals such as Martin [Martin89] argue the moral questions by analogy. The analogies are then used to justify their judgment of a hacker's actions as unethical. Breaking into a system is compared with breaking into a house, and downloading information and using computer and telecommunications services is compared with stealing tangible goods. But, say hackers, the situations are not the same. When someone breaks into a house, the objective is to steal goods, which are often irreplaceable, and property is often damaged in the process. By contrast, when a hacker breaks into a system, the objective is to learn and avoid causing damage. Downloaded information is copied, not stolen, and still exists on the original system. Moreover, as noted earlier, information has not been traditionally regarded as property. Dibbel [Dibbel90] says that when the software industries and phone companies claim losses of billions of dollars to piracy, they are not talking about goods that disappear from the shelves and could have been sold.

We often say that breaking into a system implies a lack of caring for the system's owner and authorized users. But, one hacker says that the ease of breaking into a system reveals a lack of caring on the part of the system manager to protect user and company assets, or failure on the part of vendors to warn managers about the vulnerabilities of their systems. He estimated his success rate of getting in at 10-15%, and that is without spending more than an hour on any one target system. Another hacker says that he sees messages from vendors notifying the managers, but that the managers fail to take action.

Richard Pethia of CERT (Computer Emergency Response Team) reports that they seldom see cases of malicious damage caused by hackers, but that the break-ins are nevertheless disruptive because system users and administrators want to be sure that nothing was damaged. (CERT suggests that sites reload system software from secure backups and change all user passwords in order to protect against possible back doors and Trojan Horses that might have been planted by the hacker. Pethia also noted that prosecutors are generally called for government sites, and are being called for non-government sites with increasing frequency.) Pethia says that break-ins also generate a loss of trust in the computing environment, and may lead to adoption of new policies that are formulated in a panic or management edicts that severely restrict connectivity to outside systems. Brian Harvey says that hackers cause damage by increasing the amount of paranoia, which in turn leads to tighter security controls that diminish the quality of life for the users. Hackers respond to these points by saying they are the scapegoats for systems that are not adequately protected. They say that the paranoia is generated by ill-founded fears and media distortions (I will return to this point later), and that security need not be oppressive to keep hackers out; it is mainly making sure that passwords and system defaults are well chosen.

Pethia says that some intruders seem to be disruptive to prove a point, such as that the systems are vulnerable, the security personnel are incompetent, or "it's not nice to say bad things about hackers." In the N.Y. Times, John Markoff [Markoff90] wrote that the hacker who claimed to have broken into Cliff Stoll's system said he was upset by Stoll's portrayal of hackers in "The Cuckoo's Egg" [Stoll90]. Markoff reported that the caller said: "He (Stoll) was going on about how he hates all hackers, and he gave pretty much of a one-sided view of who hackers are."

"The Cuckoo's Egg" captures many of the popular stereotypes of hackers. Criminologist Jim Thomas criticizes it for presenting a simplified view of the world, one where everything springs from the forces of light (us) or of darkness (hackers) [Thomas90]. He claims that Stoll fails to see the similarities between his own activities (e.g., monitoring communications, "borrowing" monitors without authorization, shutting off network access without warning, and lying to get information he wants) and those of hackers. He points out Stoll's use of pejorative words such as "varmint" to describe hackers, and Stoll's quote of a colleague: "They're technically skilled but ethically bankrupt programmers without any respect for others' work — or privacy. They're not destroying one or two programs. They're trying to wreck the cooperation that builds our networks," [Stoll90, p. 159]. Thomas writes "at an intellectual level, it (Stoll's book) provides a persuasive, but simplistic, moral imagery of the nature of right and wrong, and provides what — to a lay reader — would seem a compelling justification for more statutes and severe penalties against the computer underground. This is troublesome for two reasons. First, it leads to a mentality of social control by law enforcement during a social phase when some would argue we are already over-controlled. Second, it invokes a punishment model that assumes we can stamp out behaviors to which we object if only we apprehend and convict a sufficient number of violators. ... There is little evidence that punishment will in the long run reduce any given offense, and the research of Gordon Meyer and I suggests that criminalization may, in fact, contribute to the growth of the computer underground."

6. Public Image and Treatment

Hackers express concern about their negative public image and identity. As noted earlier, hackers are often portrayed as being irresponsible and immoral. One hacker said that "government propaganda is spreading an image of our being at best, sub-human, depraved, criminally inclined, morally corrupt, low life. We need to prove that the activities that we are accused of (crashing systems, interfering with life support equipment, robbing banks, and jamming 911 lines) are as morally abhorrent to us as they are to the general public."

The public identity of an individual or group is generated in part by the actions of the group interacting with the standards of the community observing those actions. What then accounts for the difference between the hacker's public image and what they say about themselves? One explanation may be the different standards. Outside the hacking community, the simple act of breaking into systems is regarded as unethical by many. The use of pejorative words like "vandal" and "varmint" reflect this discrepency in ethics. Even the word "criminal" carries with it connotations of someone evil; hackers say they are not criminal in this sense. Katie Hafner notes that Robert Morris Jr., who was convicted of launching the Internet worm, was likened to a terrorist even though the worm did not destroy data [Hafner90].

Distortions of events and references to potential threats also create an image of persons who are dangerous. Regarding the 911 incident where a hacker downloaded a file from Bell South, Goldstein reported "Quickly, headlines screamed that hackers had broken

into the 911 system and were interfering with emergency telephone calls to the police. One newspaper report said there were no indications that anyone had died or been injured as a result of the intrusions. What a relief. Too bad it wasn't true," [Goldstein90]. In fact, the hackers involved with the 911 text file had not broken into the 911 system. The dollar losses attributed to hacking incidents also are often highly inflated.

Thomas and Meyer [ThomasMeyer90] say that the rhetoric depicting hackers as a dangerous evil contributes to a "witch hunt" mentality, wherein a group is first labeled as dangerous, and then enforcement agents are mobilized to exorcise the alleged social evil. They see the current sweeps against hackers as part of a reaction to a broader fear of change, rather than to the actual crimes committed.

Hackers say they are particularly concerned that computer security professionals and system managers do not appear to understand hackers or be interested in their concerns. Hackers say that system managers treat them like enemies and criminals, rather than as potential helpers in their task of making their systems secure. This may reflect managers' fears about hackers, as well as their responsibilities to protect the information on their systems. Stallman says that the strangers he encounters using his account are more likely to have a chip on their shoulder than in the past; he attributes this to a harsh enforcer mentality adopted by the establishment. He says that network system managers start out with too little trust and a hostile attitude toward strangers that few of the strangers deserve. One hacker said that system managers show a lack of openness to those who want to learn.

Stallman also says that the laws make the hacker scared to communicate with anyone even slightly "official," because that person might try to track the hacker down and have him or her arrested. Drake raised the issue of whether the laws could differentiate between malicious and nonmalicious hacking, in support of a "kinder, gentler" relationship between hackers and computer security people. In fact, many states such as California initially passed computer crime laws that excluded malicious hacking; it was only later that these laws were amended to include nonmalicious actions [HollingerLanza-Kaduce88]. Hollinger and Lanza-Kaduce speculate that these amendments and other new laws were catalyzed mainly by media events, especially the reports on the "414 hackers" and the movie "War Games," which created a perception of hacking as extremely dangerous, even if that perception was not based on facts.

Hackers say they want to help system managers make their systems more secure. They would like managers to recognize and use their knowledge about system vulnerabilities. Landreth [Landreth89] suggests ways in which system managers can approach hackers in order to turn them into colleagues, and Goodfellow also suggests befriending hackers [Goodfellow83]. John Draper (Cap'n Crunch) says it would help if system managers and the operators of phone companies and switches could coope rate in tracing a hacker without bringing in law enforcement authorities.

Drake suggests giving hackers free access in exchange for helping with security, a suggestion that I also heard from several hackers. Drake says that the current attitude of treating hackers as enemies is not very conducive to a solution, and by belittling them, we only cause ourselves problems.

I asked some of the hackers whether they'd be interested in breaking into systems if the rules of the "game" were changed so that instead of being threatened by prosecution, they were invited to leave a "calling card" giving their name, phone number, and method of breaking in. In exchange, they would get recognition and points for each vulnerability they discovered. Most were interested in playing; one hacker said he would prefer monetary reward since he was supporting himself. Any system manager

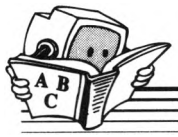
interested in trying this out could post a welcome message inviting hackers to leave their cards. This approach could have the advantage of not only letting the hackers contribute to the security of the system, but of allowing the managers to quickly recognize the potentially malicious hackers, since they are unlikely to leave their cards. Perhaps if hackers are given the opportunity to make contributions outside the underground, this will dampen their desire to pursue illegal activities.

Several hackers said that they would like to be able to pursue their activities legally and for income. They like breaking into systems, doing research on computer security, and figuring out how to protect against vulnerabilities. They say they would like to be in a position where they have permission to hack systems. Goodfellow suggests hiring hackers to work on tiger teams that are commissioned to locate vulnerabilities in systems through penetration testing. Baird Info-Systems Safeguards, Inc., a security consulting firm, reports that they have employed hackers on several assignments [Baird87]. They say the hackers did not violate their trust or the trust of their clients, and performed in an outstanding manner. Baird believes that system vulnerabilities can be better identified by employing people who have exploited systems.

One hacker suggested setting up a clearinghouse that would match hackers with companies that could use their expertise, while maintaining anonymity of the hackers and ensuring confidentiality of all records. Another hacker, in describing an incident where he discovered a privileged account without a password, said "What I (and others) wish for is a way that hackers can give information like this to a responsible source, AND HAVE HACKERS GIVEN CREDIT FOR HELPING! As it is, if someone told them that 'I'm a hacker, and I REALLY think you should know...' they would freak out, and run screaming to the SS (Secret Service) or the FBI. Eventually, the person who found it would be caught, and hauled away on some crazy charge. If they could only just ACCEPT that the hacker was trying to help!" The clearinghouse could also provide this type of service.

Hackers are also interested in security policy issues. Drake expressed concern over how we handle information about computer security vulnerabilities. He argues that it is better to make this information public than cover it up and pretend that it does not exist, and cites the CERT to illustrate how this approach can be workable. Other hackers, however, argue for restricting initial dissemination of flaws to customers and users. Drake also expressed concern about the role of the government, particularly the military, in cryptography. He argues that NSA's opinion on a cryptographic standard should be taken with a large grain of salt because of their code breaking role.

Some security specialists are opposed to hiring hackers for security work, and Eugene Spafford has urged people not to do business with any company that hires a convicted hacker to work in the security area [ACM90]. He says that "This is like having a known arsonist install a fire alarm." But, the laws are such that a person can be convicted for having done nothing other than break into a system; no serious damage (i.e., no "computer arson") is necessary. Many of our colleagues, including Geoff Goodfellow [Goodfellow83] and Brian Reid [Frenkel87], admit to having broken into systems in the past. Reid is quoted as saying that because of the knowledge he gained breaking into systems as a kid, he was frequently called in to help catch people who break in. Spafford says that times have changed, and that this method of entering the field is no longer socially acceptable, and fails to provide adequate training in computer science and computer engineering [Spafford89]. However, from what I have observed, many hackers do have considerable knowledge about telecommunications, data security, operating systems, program-



ming languages, networks, and cryptography. But, I am not challenging a policy to hire competent people of sound character. Rather, I am challenging a strict policy that uses economic pressure to close a field of activity to all persons convicted of breaking into systems. It is enough that a company is responsible for the behavior of its employees. Each hacker can be considered for employment based on his or her own competency and character.

Some people have called for stricter penalties for hackers, including prison terms, in order to send a strong deterrent message to hackers. John Draper, who was incarcerated for his activities in the 1970's, argues that in practice this will only make the problem worse. He told me that he was forced under threat to teach other inmates his knowledge of communications systems. He believes that prison sentences will serve only to spread hacker's knowledge to career criminals. He said he was never approached by criminals outside the prison, but that inside the prison they had control over him.

One hacker said that by clamping down on the hobbyist underground, we will only be left with the criminal underground. He said that without hackers to uncover system vulnerabilities, the holes will be left undiscovered, to be utilized by those likely to cause real damage.

Goldstein argues that the existing penalties are already way out of proportion to the acts committed, and that the reason is because of computers [Goldstein89]. He says that if Kevin Mitnick had committed crimes similar to those he committed but without a computer, he would have been classified as a mischief maker and maybe fined $100 for trespassing; instead, he was put in jail without bail [Goldstein89]. Craig Neidorf, a publisher and editor of the electronic newsletter "Phrack," faces up to 31 years and a fine of $122,000 for receiving, editing, and transmitting the downloaded text file on the 911 system [Goldstein90]. [Since the time I wrote this, a new indictment was issued with penalties of up to 65 years in prison. Neidorf went on trial beginning July 23. The trial ended July 27 when the government dropped all charges. DED]

7. Privacy and the First and Fourth Amendments

The hackers I spoke with advocated privacy protection for sensitive information about individuals. They said they are not interested in invading people's privacy, and that they limited their hacking activities to acquiring information about computer systems or how to break into them. There are, of course, hackers who break into systems such as the TRW credit database. Emanuel Goldstein argues that such invasions of privacy took place before the hacker arrived [Harpers90]. Referring to credit reports, government files, motor vehicle records, and the "megabytes of data piling up about each of us," he says that thousands of people legally can see and use this data, much of it erroneous. He claims that the public has been misinformed about the databases, and that hackers have become scapegoats for the holes in the systems. One hacker questioned the practice of storing sensitive personal information on open systems with dial-up access, the accrual of the information, the methods used to acquire it, and the purposes to which it is put. Another hacker questioned the inclusion of religion and race in credit records.

Drake told me that he was concerned about the increasing amount of information about individuals that is stored in large data banks, and the inability of the individual to have much control over the use of that information. He suggests that the individual might be co-owner of information collected about him or her, with control over the use of that information. He also says that an individual should be free to withhold personal information, of course paying the consequences of doing so (e.g., not getting a drivers license or credit card). In fact, all

Federal Government forms are required to contain a Privacy Act Statement that states how the information being collected will be used and, in some cases, giving the option of withholding the information.

Goldstein has also challenged the practices of law enforcement agencies in their attempt to crack down on hackers [Goldstein90]. He said that all incoming and outgoing electronic mail used by "Phrack" was monitored before the newsletter was shutdown by authorities. "Had a printed magazine been shut down in this fashion after having all of their mail opened and read, even the most thick-headed sensationalist media types would have caught on: hey, isn't that a violation of the First Amendment?" He also cites the shutdown of several bulletin boards as part of Operation Sun Devil, and quotes the administrator of the bulletin board Zygot as saying "Should I start reading my users' mail to make sure they aren't saying anything naughty? Should I snoop through all the files to make sure everyone is being good? This whole affair is rather chilling." The administrator for the public system The Point wrote "Today, there is no law or precedent which affords me ... the same legal rights that other common carriers have against prosecution should some other party (you) use my property (The Point) for illegal activities. That worries me ..."

About 40 personal computer systems and 23,000 data disks were seized under Operation Sun Devil, a two-year investigation involving the FBI, Secret Service, and other federal and local law enforcement officials. In addition, the Secret Service acknowledges that its agents, acting as legitimate users, had secretly monitored computer bulletin boards [Markoff90a]. Markoff reports that California Representative Don Edwards, industry leader Mitchell Kapor, and civil liberties advocates are alarmed by these government actions, saying that they challenge freedom of speech under the First Amendment and protection against searches and seizures under the Fourth Amendment. Markoff asks: "Will fear of hackers bring oppression?"

John Barlow writes "The Secret Service may actually have done a service for those of us who love liberty. They have provided us with a devil. And devils, among their other galvanizing virtues, are just great for clarifying the issues and putting iron in your spine," [Barlow90]. Some of the questions that Barlow says need to be addressed include "What are data and what is free speech? How does one treat property which has no physical form and can be infinitely reproduced? Is a computer the same as a printing press?" Barlow urges those of us who understand the technology to address these questions, lest the answers be given to us by law makers and law enforcers who do not. Barlow and Kapor are constituting a foundation to "raise and disburse funds for education, lobbying, and litigation in the areas relating to digital speech and the extension of the Constitution into Cyberspace."

8. Conclusions

Hackers say that it is our social responsibility to share information, and that it is information hoarding and disinformation that are the crimes. This ethic of resource and information sharing contrasts sharply with computer security policies that are based on authorization and "need to know." This discrepancy raises an interesting question: Does the hacker ethic reflect a growing force in society that stands for greater sharing of resources and information — a reaffirmation of basic values in our constitution and laws? It is important that we examine the differences between the standards of hackers, systems managers, users, and the public. These differences may represent breakdowns in current practices, and may present new opportunities to design better policies and mechanisms for making computer resources and information more widely available.

The sentiment for greater information sharing is not restricted to hackers. In the best seller, "Thriving on Chaos," Tom Peters [Peters87] writes about sharing within organizations: "Information hoarding, especially by politically motivated, power-seeking staffs, has been commonplace throughout American industry, service and manufacturing alike. It will be an impossible millstone around the neck of tomorrow's organizations. Sharing is a must." Peters argues that information flow and sharing is fundamental to innovation and competitiveness. On a broader scale, Peter Drucker [Drucker89] says that the "control of information by government is no longer possible. Indeed, information is now transnational. Like money, it has no 'fatherland.' "

Nor is the sentiment restricted to people outside the computer security field. Harry DeMaio [DeMaio89] says that our natural urge is to share information, and that we are suspicious of organizations and individuals who are secretive. He says that information is exchanged out of "want to know" and mutual accommodation rather than "need to know." If this is so, then some of our security policies are out of step with the way people work. Peter Denning [DenningP89] says that information sharing will be widespread in the emerging worldwide networks of computers and that we need to focus on "immune systems" that protect against mistakes in our designs and recover from damage.

I began my investigation of hackers with the question, who are they and what is their culture and discourse? My investigation uncovered some of their concerns, which provided the organizational structure to this paper, and several suggestions for new actions that might be taken. My investigation also opened up a broader question: What conflict in society do hackers stand at the battle lines of? Is it owning or restricting information vs. sharing information — a tension between an age-old tradition of controlling information as property and the Englightenment tradition of sharing and disseminating information? Is it controlling access based on "need to know," as determined by the information provider, vs. "want to know," as determined by the person desiring access? Is it law enforcement vs. freedoms granted under the First and Fourth Amendments? The answers to these questions, as well as those raised by Barlow on the nature of information and free speech, are important because they tell us whether our policies and practices serve us as well as they might. The issue is not simply hackers vs. system managers or law enforcers; it is a much larger question about values and practices in an information society.

Acknowledgments

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My Experience With The U. S. Secret Service

by Len Rose
Reprinted from Computer Underground Digest

The day it happened, I left my home around 11:00 A.M. to meet with a potential client in Washington, D.C. After several hours with my client, I started the drive

back through the rush-hour traffic. It was just a few minutes after 5:00 P.M. that I pulled into my driveway in Middletown, MD. I remember getting out of the car and noticing that someone was in the back yard.

He was wearing a blue windbreaker and was neatly dressed. We had been trying to sell a Jeep, and I assumed he was interested in buying the car. "What can I do for you" I asked. I remember being slightly pissed that this person had just been hanging around the back of my home. He flipped his jacket aside and I saw a badge on his belt and a gun in a shoulder holster. "Please go into the house" he replied. I was pretty shaken and asked "What have I done wrong?" Without answering the question, he took my arm and sort of marched me into the front door of my home. Upon entering, two agents pulled me up from the foyer, and put me against the wall while searching me. Then I remember being shown the front of a search warrant and then taken into my master bedroom. The door was shut and I didn't leave the room for more than five hours.

They introduced themselves, and I asked them what this was about. Foley replied "We will ask the questions.... Do you know any of these hackers?" I was asked about 10 or 15 names, and out of them I said I recognized one or two from seeing articles here and there but hadn't had any contact with them. I remember Foley getting angry. "You had better cooperate, let's try again." I reiterated that I knew none of them. He said "You are not telling us the truth." I told him I had little contact with hackers and had been away from that scene for quite some time. He then scoffed and said "You have a hacker handle don't you...what is it?" I paused, and then replied "Terminus, but I haven't used it or gone by that in a very long time." He said "Right, like last month." I thought about that and then I started to feel sick inside. I knew that I had sent Craig Neidorf a copy of login.c which had been modified to perform certain functions that basically made it a trojan horse. I used that handle since I didn't want the world to know that Len Rose was sending someone proprietary source code through mail. He shoved a photocopy of a printout under my nose and asked me if I recognized it. I looked at it and said, "Yes." He asked me If I had made the modifications and placed certain comments within the source. "Yes" again. "But I never used it" I blurted out.

"We are only interested in the 911 software and Rich Andrews" they said. (I never had anything to do with 911 software and after an extensive search of my systems that night by a certain AT&T employee they seemed to agree.)

"Did Rich Andrews send you a copy of the 911 software?" Foley asked me. I told them

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no, no one had sent me anything of the sort. I told them that Rich had found some portion of 911 software on his system and sent it to Charley Boykin to see if it was serious. Rich had told me before, and I sort of approved of the idea. I remember Rich saying that he'd had no response whatsoever. (I wish he had told me the truth, but that is for him to explain why.)

"We want dirt on Rich Andrews," Special Agent Timothy Foley said. "We feel he has been less than cooperative." and "Do you know he is a convicted felon?" I replied, "Yes, but he is a good friend and I know he hasn't done anything wrong. He is not involved with hackers." Foley asked me about any dealings I had with Rich. I realized then that lying wouldn't do me any good, so I told them everything I could remember. What I had to say must not have been good enough, as Foley kept saying I wasn't going to get anywhere unless I told them all the truth. It took me a long time to convince them that was all I knew.

During the interrogation, my post legal problems in Virginia were brought up, and I mentioned that I might be acquitted. Jack Lewis said "If you get off in Virginia, I'll make sure we burn you for this" I felt then that I was completely shut off from reality.

Foley then asked me to tell them anything illegal I had done. Jack Lewis said "It would be better if you tell us now, because if we discover anything else later it will be very serious." I was really scared by this time, but I remember telling them that I had copies of AT&T System V v.3.1, System V v.3.2, and various other pieces of software which had been given to me by certain employees of AT&T (without the benefit of a license agreement). "Where is it," they asked. I told them that I had a couple nine-track tapes with prominent labels on a tape rack.

I remember asking several times to see my wife and to be allowed to go to the bathroom. Each time I was told I couldn't. I would have asked for an attorney, but my mind had shut down completely. About six hours later I was led out of my bedroom and told to sit at the kitchen table and not to move. Foley and Lewis sat with me, put a sheet of paper in front of me, and told me to write a statement.

"What do you want me to write about?" I asked.

Foley responded, "Everything you told us about Rich Andrews and everything about the Trojan horse login program. Make sure you mention the System V source code."

So, as they began loading up the moving truck with my equipment, I wrote about two pages of information. Before leaving, it was about midnight when they left, they handed me a subpoena to appear before the Grand Jury.

They told me to tell Rich Andrews my main UNIX system had crashed, and not to let him know that the Secret Service had been here. I felt pretty bad about this because I kept thinking they were going to get him. He must have called me six or seven times the day after the raid. I couldn't tell him anything, since I assumed my line was tapped.

I went outside as they were starting to leave and looked into the back of the moving truck. The way some of the equipment was packed, I knew it wouldn't survive the trip into Baltimore. I asked for permission and received permission to re-pack several items (CPUs, hard disks, and a nine-track drive). As I watched my belongings pull away, I remember feeling so helpless and confused. It was only then did it sink in that every material possession that really mattered to me (other than my home) was gone. All I had to show for it was a sketchy 20-page inventory.

Later, my wife told me what had gone on before I got home. The Secret Service had arrived around 3:00 P.M., and knocked on the door. She opened the door, and five or six agents pushed her back into the foyer. They took her by the arms and moved her over to a sofa in the living room. They had a female agent with them, and this person was detailed to stay with her. She was not allowed to make phone calls, or answer them (until much later in the evening). My children were also made to stay on the sofa. My son,

who was four at the time, refused to submit to their authority (guns didn't scare him) and would get up often and follow the agents around. From what my wife recalls, they were amused at first, then later became less enthusiastic about that.

She wasn't allowed to feed the kids until after I had been released from the interrogation session. She remembers getting up several times, to go to the bathroom or to retrieve diapers, etc., and was told to get back onto the sofa. The female agent even followed her into the bathroom. The massive search of every nook and cranny of our home encompassed much more than computer equipment. To this day, I feel there is a direct link between my previous legal problem in Virginia and the extent of the search that day. In fact, the Secret Service had obtained items seized from me by Virginia and had them in their posession before the raid ever took place.

I went down to the Secret Service office a couple days later to voluntarily answer the subpoena. I set up my equipment for them. Although they had labled most cables and connectors, there was some confusion. I remember showing them how to use my systems, and in particular how to do a recursive directory listing of every file contained within. After a while, once they made sure they had backups, I was allowed to type a few commands at a terminal in order to retrieve an ascii text file (a resume).

Later, while being escorted back out to the front of their offices, I saw a large room filled with stacks of boxes and equipment cases which had constituted the entire sum of my office; equipment, software, and documentation. I was feeling pretty numb, and asked the agents to please take care of everything, since I hoped to get it back. In reflection, it seemed pretty pitiful.

It was here that they told me I would be prosecuted, and I drove back from Baltimore feeling betrayed. I had completely cooperated with them, and had been told I would not be prosecuted. When I got home, I was crying. I couldn't handle this anymore. My sister was there and I remember she gave me three Valium. I calmed down and in fact got pretty high from it.

The following is something the Secret Service allege I did:

Allegedly, from a phone booth, I had called Rich Andrews and warned him to get rid of any source code or software he shouldn't have. At this time I was also alleged to have told Rich that I was leaving the country, and would go to Korea with my wife and kids. (If I did do this, I never said anything about leaving.) They apparently had either tapped his line, or he told them about my call. (I would have been stupid to say this, since Korea has extradition treaties with the U.S.)

Reported here because it's a part of the case. - Ed.

My Arrest:

Several days later, I received a sudden call from Special Agent John Lewis, who told me to come down and pick up my fax machine. (I had been pestering them about it so I could fax my resume out to headhunters so I could find a job.)

Ironically, I had been hired a week before by Global Computer Systems in New Jersey to work as a contractor at AT&T's 3B2 Hotline in South Plainfield, New Jersey. I knew that after this AT&T wouldn't have anything to do with me and in fact was informed so the night of the raid.

Upon entering the Secret Service office (Feb. 6) around 5:00 P.M., I waited outside in the waiting room. I had been doing some house painting and wasn't dressed very well. Jack Lewis came out and brought me back to one of their offices. He held out his hand (as if to shake it) and instead put hand cuffs on my hand. He then locked the other to an eyebolt on the desk. He sat down across from me and told me to empty my pockets. I complied, and then he started writing an inventory of my posessions.

Jack Lewis looked up from his writing and said "You f**ked us, Len!"

"What do you mean?" I said. "You called Rich Andrews, and warned him to get rid of anything he shouldn't have, you f**ked us!" I didn't reply.

He then told me to pull my shoestrings out of my sneakers, so I did. He called another agent in to witness the contents of his inventory, sealed the envelope and then told me I was going to jail. About 15 minutes later he released the handcuffs from the desk, and put my arms behind my back and handcuffed them again.

I was led into the hallway while he finished some last-minute details. He was nice enough to let me make a phone call, when I asked him. I promptly called a friend in Philadelphia. I knew he would know what to do. Because my wife didn't speak English well and would have been hysterical, I couldn't count on her to be much help.

They drove me over to the Baltimore City Jail and told the bored-looking turnkey at the desk to hold me for the night.

I was pretty hungry but I had missed the evening meal, so despite repeated pleas to make my phone call the jailers ignored me. The people in the cells next to mine were an interesting lot. One was in for killing someone, and the other was in for a *crack* bust. Someone in the cell block was drugged out, and kept screaming most of the night. I didn't sleep much that night, and the with the cold steel slab they call a bed it wouldn't have been possible anyway. Sometime around 9:00 A.M., a jailer appeared and let me out.

I was turned back over to the Secret Service and they drove me back to the Federal Building. They put me in another holding cell where I remained for about two hours. A Federal Marshal came and took me to a courtroom, where I was charged with a criminal complaint of transporting stolen property over interstate lines with a value of $5,000 or more.

The conditions for my release were fairly simple.

Sign a signature bond placing my home as collateral, and surrender my passport.

Fortunately my wife had come down earlier and Agent Lewis had told her to get my passport or I wouldn't be released. She drove the 120-mile round trip and found it. She returned, I was brought down to the courtroom, and the magistrate released me.

We retained an attorney that day, and several weeks later they agreed to drop all charges. I am told this was to give both sides some time to work out a deal. Against the better judgement of my (then) attorney, I offered to meet with the Assistant U. S. Attorney if they would bring someone down from Bell Labs. My thinking was that surely a UNIX hacker would understand the ramifications of my changes to the login.c source and corroborate my explanations for the public-domain password scanner. They also wanted me to explain other sinister activities, such as why I had an alias for the Phrack editors, and I knew a UNIX person from the Labs would know what I meant when I said it made it easier for people to get to BITNET sites.

I was a complete fool, and the person from Bell Labs got me in even worse trouble when he told them I had other trojan software on the systems. He was referring to a public domain implementation of su.c which David Ihnat (Chinet) had written to allow people to share su access without actually knowing the root password.

"But it is public-domain software," I cried.

The Bell Labs person turned and told David King (Asst. US Attorney) that I was lying. He went on to say that there was a considerable amount of R&D source code on my machines. Things that no one should possess outside of AT&T, like Korn shell and AwkCC.

My attorney (Mr. Carlos Recio of Deso and Greenberg, Washington D.C.) was furious with me. All he could say was that "I told you so."

I realized I had been stupid. I had hoped if I could explain the situation to the government and have someone from AT&T verify

that what I said was true, then they would realize I was just a typical UNIX freak who hadn't been involved in anything more sinister than possibly puttering around with having things I shouldn't have.

After a few months, the best deal Mr. King offered was for me to plead guilty to two felony counts (computer fraud), for which I would receive a sentence of 17 months in prison. I refused to take the deal. (I may live to regret that decision when my trial begins in 1991.)

In May, 1990 I was formally charged with five felony counts. The rest is history.

Present Day

In better times I never lacked for work, and lived in a world where I spent more on phone bills per month (uucp traffic) than I have earned in the last four months.

I am sitting here (rather lying, since I cannot get up) by a laptop computer on loan to me from a friend. Lately, I have grown to feel that without this little laptop and its modem linking me to the network I would have been driven mad a long time ago. Reading Usenet news has been my only solace lately. During the day I spend hours calling around to all the headhunters asking for work. Since I still have a fax machine, I am able to fax my resume around. So far, I haven't had much luck in finding anything at all. Since all this happened, it seems that I have been blacklisted. A few companies expressed interest, but later called back and asked me if I was the *LoD hacker* and I told them yes. They weren't interested anymore (I cannot blame them).

I guess the *UNIX Today* articles have cost me more than any of the others. I lost a great contract ($500 a day) with a major bank in Manhattan when they saw the first article. In various articles from various newspapers, I have been called the *Mastermind of the Legion of Doom* and other bizarre things.

The lies told by the US Attorney in Baltimore in their press release were printed verbatim by many papers. The usual propaganda about the Legion's activities in credit card fraud, break-ins, and the threat to the 911 system were all discussed in that press release and cast a bad light on me.

I have had the good fortune to have a friend in Philadelphia who has loaned me office space in his firm's building. Such an arrangement lends an air of credibility to Netsys, Inc. Too bad I have no clients or contracts.

Since I broke my leg pretty badly (the doctor says I will be in a cast for six months and may require surgery), I haven't been able to visit the office but I have an answering machine there and I check my calls daily.

We (my wife and two children) moved to the Philadelphia suburbs in order to put as much distance as possible from the SS Agent John "Jack" Lewis who is based in Baltimore.

I realize that the Secret Service have offices in every city, and agents to spare, but it made me feel better knowing that he is in Baltimore and I am here.

Anyway, at this point I am trying to find a few system administrator jobs, and would take any salary they offered me. I am scared about the next few months since I cannot even get a job as a laborer or a 7-11 clerk since my leg is screwed. My wife (who has a liberal arts degree) is looking for a job in this area. We hope she can get a job working minimum wage in some department store or as a waitress.

We have enough money to last another month I guess. Then I am not sure what we will do, since we haven't any relatives who will take us in. I have never been unemployed since leaving high school, and it's a pretty bad feeling. If I survive this, I will never forget what has happened. I can't help feeling that there is a thin veneer of freedom and democracy in this country, and agencies like the Secret Service are really far more powerful than anyone had realized.

I know that my friends within AT&T (E. Krell for one) feel I have stolen from their company. I can only laugh at this attitude

since I have probably done more for AT&T than he has. Those of you who knew me before can attest to this. While it was wrong to possess source code without a license, I never tried to make money from it. I wrote a Trojan Horse program, which in all honesty was done to help defend my own systems from attack (it is currently installed as /bin/login on my equipment). Any allegations that I installed it on other systems are completely false. In fact, most of the source code was given to me by AT&T employees.

As far as the public-domain password scanner program, well, I realize that most of you know this, but items far more powerful can be obtained from any site that archives comp.sources.unix, and comp.sources.misc. I used it as a legitimate security tool when doing security audits on my own systems and clients. It wasn't very good really, and considering it was obsolete (System V 3.2 /etc/shadow) anyway, its usefulness was limited.

Since the SS will be reading this article with interest, I want to point out that I will fight you to the end. Someday I hope you will realize you made an honest mistake and you will rectify it. Perhaps there was some justification I am not aware of, but I doubt it. If I have to go to prison for this, perhaps it will benefit society. Who knows what Len Rose would have done if left to continue his criminal pursuits?

I hope to get my equipment and software back and then re-start my life. There have been repeated motions to get my equipment back, but the judge has summarily denied them, saying I will commit crimes if I get it back. I have offered to assist the Secret Service in saving evidence, and to sign any agreement they choose regarding validity of that evidence.

I may take up begging soon, and ask for help from someone who is rich. It's going to be winter soon and I don't look forward to being on the street.

Computer Underground Digest (Moderator's update)

Len Rose's trial is scheduled for February, 1991. His situation, however, continues to cause problems. Although even by the least charitable assessment his crimes are not serious, the publicity makes it difficult for him to find employment. He has no steady source of income. His problems are complicated by the seizure of his possessions. He lost his equipment, and even if ultimately exonerated as Craig Neidorf was, his financial burden makes it impossible to support his wife and children. Len has demonstrated his competence in the past as a programmer and as a consultant, and his expertise in the realm of computer security would be an asset to any employer. This newsletter is not an employment bulletin, but Len's case merits an alternative forum, and we are willing to provide space for him.

Many of us feel that Len has, for some reason, been the victim of law enforcement excesses in hacker-hunting. Under our Constitution, Len is innocent unless proven otherwise. Even if he is guilty as charged, there are surely less intrusive and devastating ways to handle such cases. Full invocation of the criminal justice system is simply not an appropriate way to handle these types of situations.

Len remains in Naperville, Ill., without a job. He is eligible for minimal social service benefits. Although there are individuals who have taken an interest in the legal issues involved in his situation, he has no means of providing for his wife and two young children.

Sheldon Zenner, the attorney who successfully defended Craig Neidorf, has agreed to channel donations to Len for those wishing to support him. *This is not* a legal defense fund, but humanitarian assistance to provide food, rent, and utilities for Len's wife and family.

Len Rose Donation
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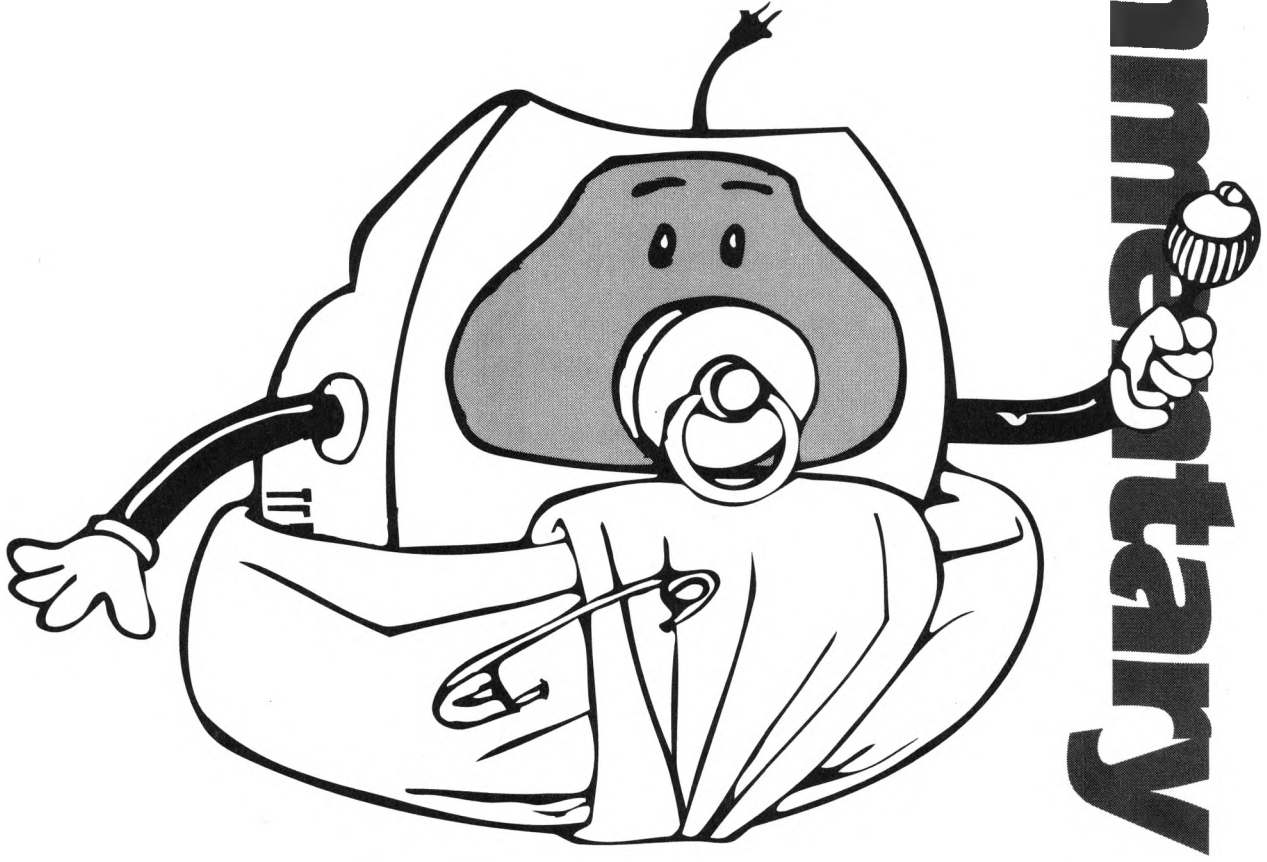


A Product Cliché

by John F. Williams

CUPERTINO, Calif.—April 1, 1994—Teknominisoft, Inc. today announced BlankDisk™ 1.0, during a large multiple media event, held here in the photogenic Teknominisoft Towers.

BlankDisk is a *personal desktop tool* designed to help users better communicate with their Macs, personally. The product comes complete with a user manual, a technical reference guide, an unbreakable quick reference card, and a HyperCard Tour disk containing gratuitous icon animation. In addition, you get a 99 year subscription to future versions. The first 3 buyers will receive 1 free disk label, for a small surcharge.

Shipped in a handsome black shaving case, BlankDisk is essentially an 800K floppy disk specially designed to work on all models of Apple's popular personal computer line, Macintosh. While the disk itself contains no files or folders, Teknominisoft product manager D. Lay Shipmint explained, "This product is really extremely useful because you can store files on it." BlankDisk will also ship in a CD-ROM version.

The main technology for BlankDisk was not developed at Teknominisoft, but was obtained through a nonexclusive agreement with a *top disk manufacturer*. Teknominisoft, however, has added tremendous value to the technology licensed, and expects to sell well over a billion units in the first day, December 26th.

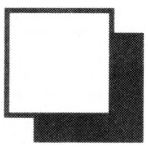
A member of Teknominisoft's strategic-tactical, corporate Fortune 1 Million end-user sales team was quoted as saying, "BlankDisk will revolutionize personal communications, by leveraging our powerful installed base of Not-For-Resale (NFR) clients, as well as by stuffing our television channel."

The announcement of BlankDisk comes on the heals of a multi-billion dollar advertising campaign, highlighted by multiple full-page ads in MacWeek and a shrewd direct mail campaign aimed at avocado eaters.

The expected SRP (suggested retail price) will be $199.99. Director of Pricing, Milke deBuyer, commented, "As you know, our SRP is well below $200, and we think users will buy this product solely because of the TekAnominisoft reputation for quantity, timelessness, and our priceless reputation." The street price should be around $3 for a fully configured unit. Furthermore, deBuyer added, Teknominisoft realizes that there is already stiff competition in the market for blank disks from other companies, whose products may be 95% cheaper, and better. That is why Teknominisoft is marketing BlankDisk as the *high end* of floppy disk-based storage, a market which Teknominisoft believes exists and will be willing to pay a higher price for a product that offers no significant advantages to traditional floppy disks.

Teknominisoft's Director of Pre-Shipment Sales recently explained Teknominisoft's generous offer to sell BlankDisk well ahead of its shipment: "We will be taking paid orders before BlankDisk ships, purely as a convenience to our beloved and intelligent customers, whom we love a lot."

Despite earlier projections, BlankDisk will *probably ship sometime in the quarter*, according to Teknominisoft. Teknominisoft's official policy is to announce products only on the day of their shipment, but a special case is being made for BlankDisk, due to all of the excitement surrounding the product, as well as suspected high demand.



Plans for BlankDisk 3.0 are already underway, and BlankDisk 1.0.1 is already finished just in case 1.0 has problems. The 3.0 upgrade may include a subset of the features in the superfluous and totally unsellable Teknominisoft internal project, *SystemReplacement*™, which heretofore has been unreleased to the public, and is used sparsely at Teknominisoft's galactic headquarters. The 3.0 upgrade to current users will be priced slightly higher than the retail version, and will ship 6 months after the retail version, as a courtesy.

Teknominisoft's Director of Direction said, "BlankDisk is poised perfectly to fit into the Teknominisoft product line, being positioned somewhere near the communications products, slightly ahead of the hardware family, and just beside our multimedia software. BlankDisk is definitely an integral part of any personal desktop multimedia groupware presentation, shown over a network in a time-space domain using ISDN."

In a totally unrelated note, Teknominisoft also today announced that for a limited time, you can get Teknominisoft's hot new OEM'd software *FinderReplacement*™ for free. Just send your name and address, plus the phone numbers of at least 20 people you know who would like a call from a salesperson, plus a modest $149.99 in shipping and handling fees to Teknominisoft.

Musing Over Operation Sun Devil

by Jim Thomas

Reprinted from the Computer Underground Digest, Volume 2, Issue #2.02 (September 9, 1990)

It is nearly four months after the May 8 raids from Operation Sun Devil, and pushing three years since the investigation began. To date, there still seems to be little that

has come from the highly publicized operation. In various press releases, public appearances, and comments to the media, the operation was called by law enforcement a major effort in the crackdown on hackers, the beginning of a national sweep against computer crime, and an attack on threats to national security.

In many ways, Operation Sun Devil and the raids that preceded it were trial by *media*. Law enforcement officials issued press releases, appeared on tv and radio talk shows, and made themselves quite visible with their sweeping, strident, and often factually wrong comments. Craig Neidorf's first indictment associated him with the Legion of Doom, and it associated the LoD with bank theft and disruption of E911 services, among other crimes. The public was asked what other group of criminals held conferences and published newsletters. This does not strike us as an unprejudicial statement, especially when the presumed *criminal* about whom the allusion apparently was made was not only not convicted, but had his trial cancelled before the prosecution had even finished presenting its case. Yet, it has been those critical of the raids who were sometimes called *mean spirited*, hypocritical, and worse law enforcement and others who supported the crackdown.

Other indictments still may be forthcoming. But, our concern is that, to save face and avoid the embarrassment of what at this point appears to be a major fiasco, law enforcement officials may stretch legal definitions to prosecute even the most minor offenses as a means of showing that the Operation was justified.

It is still not clear why the particular boards that were raided were picked. The language of the indictments and comments to the media convey the imagery of a *ring*, of something organized, of people acting in collusion or in a conspiracy. Yet, neither the evidence presented so far nor any other facts that have surfaced support this.

It appears that confiscation of equipment is being used as a form of intimidation or as punishment without trial. Because of the raids, lives have been traumatically disrupted, perhaps destroyed, innocent employees have been put out of work because of the financial hardship the raids caused at least one company, and many would argue that the Bill of Rights has been tarnished by those charged with protecting them.

Most of us have consistently argued that we should not build barriers between computerists and law enforcement and that we should try to educate agents, legislators and the public to the nature of the computer underground. This, however, seems perhaps naive and idealistic. Despite the evidence, despite the reasoned approach of many, such as EFF, and despite the lack of

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indictments to date, those involved in Sun Devil show no indication whatsoever that they have listened to any of the concerned voices. They repeat the same hackneyed phrases that paint *hackers* as dangerous criminals. Dramatic statements about the costs of hackers to society, their threats to security, or their past actions for disruption are raised. But, when asked to name a few examples, or when asked for the sources of their information, they are silent, either changing the subject, repeating glib one-liners, or falling back on that old standby "We can't discuss on-going investigations."

Perhaps serious crimes were committed by some. But, if so, indictments should be issued. When suspects are investigated in a serious crime, the public (and the suspects) are generally told the specific nature of the crime and the evidence, or at least the reason they're a suspect, is revealed.

One maddening tendency of law enforcement is that of *guilt by association*. A few dramatic crimes are cited and then hackers are drawn in by association. By analogy, the logic would be akin to stating that speeding getaway drivers in a bank heist are dangerous felons, and then comparing them with a driver who speeds 10 mph over the speed limit on the freeway as a means of invoking law to confiscate speeders' cars, send them to prison for a mega-sentence, or to otherwise hassle drivers. Driving infractions, however, do not raise the Constitutional issues of right to privacy, search and seizure, or freedom of speech.

Crimes, and very serious crimes, are committed with computers. But, we suggest, the so-called *hacker community* is generally not the primary culprit. To claim that computer crime costs society x-billion dollars a year as a means of justifying the current practice of punishment without trial is deceptive at best. August Bequai indicated that most computer crime occurs from within an organization. Other serious crimes (embezzlement, theft of trade secrets) are rarely, if ever, done by the *common hacker*. There is virtually no evidence that we have seen — and if any law enforcement officials want to present some, we will alter our views — to substantiate the *slippery slope* thesis — that just as marijuana leads to *harder stuff*, a young computer hobbyist begins hacking and then moves on to bank robbery or planting serious viruses. This is just one of many examples of the hyperbole of some officials to justify their attack on the CU. The danger is that instead of finding more constructive ways to combat this new form of juvenile delinquency, they are swiping at an ant with an h-bomb (and missing). If resources are as limited as officials claim in explaining why it takes so long to investigate, or why they can't put technologically-trained agents in the field, then shouldn't those limited resources go to better use?

Pass This On To A Non-Computer Friend

by Judi Clark

This article is for those people who don't *own a Mac, a pc, an IBM or clone, or any other home computer. I wrote it because I see a misconception starting to develop*

widely among non-computer users, and I want to squash that misconception. There's something important you may want to know.

Doing work on a computer takes time. This is a fact. The mere fact of having a computer to work on doesn't save even a minute. It isn't until you have to consider the time it would take to retype the whole document that one can consider a time savings.

People that I have worked for have said, "These corrections should only take a minute," when in reality the corrections will take a minimum of a half hour. It's not that I work slowly. It's that the corrections need to be: located in both new and old copies, changed in the old copy, spell-checked if it's a long change or looked at carefully if it's a small change (typos happen even on the best computers, with the best typists), saved, then printed out (which takes a few minutes in and of itself). Please note that this doesn't count the time it takes to turn the computer on and get into the program and directory where the document is stored, which may take 5 or more additional minutes.

So where's the time being saved, you may ask. There are a number of tasks that computers can do to save you time, energy, even frustration. They will be the kind of task you will do over and over again, something like filling out time sheets, or looking up someone's name and address, or sending the same or a similar letter to many people. (There are many other tasks that computers are used for, but you'll have to ask someone who or what resources they connect to, and why).

It is important to note that setting a project up for the first time and testing it out will not be the time-saving part. In fact, it will be time-intensive, possibly using way more time than you ever thought it could. Think of it as an investment with an increasing return. The more you plan to make use of the original set-up, the more time you will save in the end by not having to recreate the first steps each time.

Life should never be harder on anyone (me included) than it occasionally and automatically can be. The more we know as beginners, the more we can do and the easier it becomes.

John Sculley Responds to Japanese Macintosh Users

by Allen Paulwin

Dear Japanese Macintosh Users,

In early December of last year I noticed with great interest the two page listing of letters to me from Japanese Macintosh users in the December 1989 issue of *MacUser Magazine*. Unfortunately, I was unable to read any of the letters since they were all in Japanese. However, I, and everyone else at Apple Computer, always think about the user first. So I was deeply concerned about what messages the Japanese users might have for me. I immediately called in one of the office boys, Jean-Louis Gassé, and we had the following conversation:

"Quick, Jean-Louis, run out and find a Chinese speaker who can translate these funny-looking characters for me."

"But master, these letters are in Japanese, not Chinese."

"You ignorant fool! Don't you know that Japanese is simply a dialect of Chinese, spoken by the inhabitants of Japan, an island province of China?"

"Well, yes, your highness, Japan is indeed an island, but it is not a province of China, it is a separate, independent country."

"Are you sure about that Jean-Louis? The Japanese use chopsticks, have a strange writing system, and take photographs of anything and everything when they are on vacation in America, just like the Chinese, right?"

"Well, your holiness, you are certainly correct about the chopsticks, but Japanese and Chinese use distinct, although similar writing systems. And only the Japanese are photography maniacs, not the Chinese. I think you should do some studying about Japan, and you should do it very soon, because you will be addressing an international meeting in Japan in just a few weeks."

"Really? You are the one who decides my schedule, why didn't you tell me about this sooner?"

"As a matter of fact, I did. Don't you remember the global strategic meeting we had last month?"

"Jean-Louis, how many times have I told you I can't remember anything for more than 72 hours, and that your primary responsibility is to remind me daily of what is going on and where Apple is going?"

"You have my most humble apologies, oh great one. I would like to remind you that the Japanese market is the fastest growing money maker for Apple. And this phenomenon is not limited to personal computers; the Japanese economy as a whole is threatening to overtake that of the United States. Don't you read the newspapers?"

"Of course I do. When I'm not busy playing *Super Mario Brothers*. But never mind about that. What I want you to do is run out and find someone who can translate these messages from Japanese users; it is absolutely essential that we know exactly what it is that the Japanese Macintosh users want from us. And get all of the senior executives together for a top-secret meeting. I am going to instigate the largest and most important re-organization that Apple has ever gone through."

Well, that was several months ago, and ever since then Apple Computer has had daily secret meetings (so secret that even *MacWeek* has had no idea of what has been going on) that will change the face of Macintosh computing forever. We have thoroughly examined the current situation and how it has come about. In particular, we have carefully studied Japanese culture, history, psychology, preferences, and business practices. With this knowledge we have devised bold, creative steps that will best serve Apple Computer and users everywhere. In fact, I believe that these changes will transform the present global economic situation. Apple Computer will once again be the clear leader, not only in innovative computer technology, but also the leader of international

business relations for the 21st century. And I want to announce to all Japanese Macintosh users first what those changes will be. In truth, the implementation of these changes has already begun.

The slogan for the new Apple will be, "Japanese Macintosh users always come first." It is obvious that Japan will take total control over the world economy within seven years, so we must make sure that the Japanese people think of Apple Computer as a true friend, if the company is going to have any possibility of surviving into the next century. This new attitude will be reflected in a wide range of areas, the first area being that of pricing policy. I was shocked to find that Macintosh prices in Japan were much higher than those in the United States. This terribly unfair situation will be immediately reversed. The list price for Macintoshes in Japan will automatically be set at 20% below the lowest available gray-market prices in the United States.

Also, because the Japanese are the most quality-conscious consumers in the world, Apple will conduct test-marketing of all new products exclusively in Japan. We know that if a product satisfies the stringent demands of Japanese users, then that product will be a guaranteed success anywhere in the world.

Apple Computer will abandon forever the outdated and simplistic ASCII code and adopt JIS code, the wave of the future, as the programming standard for all future implementations of software released by the company. We are convinced that any computer-related corporation that does not take similar steps will slowly shrivel up and be blown away by the winds of future technology. In every laboratory that software engineers are working at Apple facilities, our new motto, "Think Two-Byte" will be posted prominently on the walls.

I have learned in recent weeks that Japanese system software for the Macintosh has until now always been behind the standard American system software. In fact, Japanese system software still does not even include MultiFinder. This is totally unacceptable. From now on, Japanese system software will be regarded as the standard, and other international versions will not be released until the Japanese standard has been thoroughly tested and released to the public for at least three months. Naturally, the first such instance of "Japan first" for new system release will be System 7.0. Japanese users will be the first to enjoy all of the fantastic new features of this major system upgrade.

The new Apple will not limit itself to personal computer technology, but rather will follow the lead of the the more intelligent and talented Japanese engineers. Specifically, Apple is very interested in becoming an integral part of the world-famous Japanese Fifth Generation Project.

All of you Japanese readers may be wondering how Apple can become so intimately involved with Japanese consumers and technology when the vast Pacific Ocean lies between us. This is an extremely important point. Actually, it will be impossible to achieve all of our goals as long as we remain based in California. So I am pleased to announce that we will move Apple Computer corporate headquarters to Tokyo by the end of 1990. Please give us a warm welcome! I, John Sculley, and all Apple employees are already enrolled in intensive Japanese language learning programs, and I have my secretary serve me green tea and sushi soup for lunch every day.

In conclusion, I would like to invite all of the Japanese people to be sure to read my new book that will explain in detail all of my plans, when it is published later this year. It is titled *An American That Can Say "Yes"*. Yoroshiku onegaishimasu!

Allen Paulwin is a BMUG member of long standing who is anxious to share his enthusiasm for Macintosh with users throughout the world. He is particularly interested in Japan and the Japanese.

PC's and Political Action

by Jim Warren

Reprinted from the Computer Underground Digest, Volume 2, Issue #2. 08 (October 20, 1990)

Most folks feel powerless to change the direction of public and political events around them — in their town, state or their nation. In fact, using computers, we can

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Jim Thomas recently asked me to write about computers and political action. This is a slightly edited version of materials I wrote for a recent online interview on the WELL — Whole Earth 'Lectronic Link — in Sausalito CA. — Jim Warren, jwarren@well.sf.ca.us

Perhaps the definitive periodical for practical politicking is CAMPAIGNS & ELECTIONS, published 7 times yearly, $29.95/year, C&E, 1835 K St NW Suite 403, Washington DC 20006. It has carried a "Campaigns & Computers" section for about ten years or more. This is the BYTE Magazine of effective political action. [For those who want to accomplish political change; not just bitch about it.]

have political impact far beyond what is otherwise possible for most *middle-income* individuals. I state this from repeated personal experience and success. Here are some suggestions:

First, I need to review some essential *modern math* that every successful politician knows by heart. Thereafter, I'll give specific examples of its application, greatly empowered by computer usage.

Politicians' Basic Arithmetic

An illustrative hypothetical:

Consider a voting district of, say, 600,000 population — perhaps a city-wide or county-wide district. More than likely about half of its population will be of voting age and registered to vote. Therefore:

600,000 population = 300,000 registered voters

But, only 40%-70% will vote (low-end for local and school board elections; high-end for tight Presidential and Gubernatorial elections). Therefore:

300,000 registered voters = 120,000 to 210,000 actual voters

Now, the goodie! Most elections for an open seat are won by less than a 5% margin. And, almost all *professional* politicians will run for several open seats during their political career. (Even if they are an incumbent, now, they plan to run for a higher open seat, later.) Therefore:

120,000 voters = 6,000 swing-vote for a minor election

210,000 voters = 10,500 swing-vote for a major or Presidential election

But, if there are only two candidates, only one half of the swing vote needs to be switched from one candidate to the other. Therefore:

In a two candidate race for an open seat in a district of 600,000-population, *You* need only affect 3,000-5,250 votes to change the election. That is, a single individual need only switch 1/2-to-1 percent of the voters. Your power becomes even greater when there are more than two candidates.

And, all of these figures scale, up or down, for the size of *your* target-of-interest, uh, District. And, there's a heuristic for which there is less objective proof: One person, actively interested in an election, will critically influence 20 voters — if the person does no more than pursue casual political discussion in the course of normal business and social interaction.

POLITICAL ACTION: TUTORIAL PREFACE

The uniform wisdom among political campaign managers is that the following are effective campaign tools — listed in approximate order of importance:

0. Face-to-face contact, by candidate or supporter, door to door and in public places. Yeah, I know, I wouldn't do it, either — mentioned, here, only for completeness as *the* most effective thing someone can do.
1. *Dear friend* notes and cards, distributed by candidates' supporters to people who know the writer, i.e., the best advertising is still word-of- mouth recommendations from someone you know — even though they may be the mildest of acquaintances. ("This guy, Charlie somebody, told me a Yugo was *much* better than a Honda, and...")
2. Candidate statements included in ballot materials. <specific to Calif. > These optional statements have a word limit, are written by the candidates (i.e. , they have broad latitude in, uh, *accuracy*), and their printing costs are shared equally among the candidates choosing to have such statements distributed as part of the official ballot materials. These are the most read by voters and are given the greatest credence by the voters — in spite of the fact that they are candidates' *un-refereed* statements. This is something an outside activist can't do, except possibly in the FOR and AGAINST statements for a ballot initiative. It's something over which outsiders have no control. Mentioned for completeness and importance.]
3. Directly-distributed materials — letters, brochures, leaflets, etc. (Hot pads and videotapes have been interesting tools in recent elections.) These are usually distributed by direct-mail, but are also commonly distributed by hand, door to door.
4. Television advertising can be powerful, but only for creating emotional bias — for or against. And, it ain't for average-income folks.
5. Radio advertising runs a distant fifth, and is often considered almost useless outside of drive-time ads — which are costly. Not for citizen activists — though call-in's to talk-shows can be effective.
6. Signs and posters are uniformly considered to be almost completely useless except for encouraging the candidate's volunteer campaign workers — who want to see 'em and want to display 'em. Ditto for lapel buttons. Junk!

Example: Effective political action hinges on targeted communications with/to large numbers of people. [Surprise! Politics involves people!] *Target* and *large numbers* imply that computers are applicable. And how!

Effective Citizen/Political Action

#1: "Dear Friend..."

Send out *lots* of *Dear friend* cards or notes. They can be very brief — little more than, "I support XXX and hope you will, too." And, the need your [apparently original] signature. If the recipient's likely to at least vaguely remember your name, it's worth sending 'em a note. The note or message can be printed from original copy — typewritten is perhaps best; legible *brief* hand-written notes are probably second best (which can still be xeroxed or quick-copy printed); fancy typeset notes are least effective for communications intended to have a personal flavor. (Dear friends don't typeset notes to dear friends!)

Computer-Assisted Creations & Distribution

Of course, you maintain your personal and business address book on your personal computer — making addressing easy. And your letter-quality or lasersetter can crank out the notes — and have 'em seem highly individualized! (Folks know about form letters — but not from friends and acquaintances.) A computer greatly enhances this political power over the alternative of handwriting or hand-typing — more productivity per unit of time or effort.

Please note: Anyone who recognizes these political realities has more potential political power than those who are unaware of them. Anyone who utilizes this information enhances their political power in comparison to those who fail to use 'em. All of it takes work and effort; most of it can be used by rich and poor, alike; none of it requires computers — but much of it can be greatly enhanced by computer-assistance.

Effective Citizen/Political Action

#2: Mass Distribution

OK — you contacted your friends (both of 'em, heh!), but want to have a still greater impact. I mean *serious* impact!

Power of the [Printing] Press

Remember that directly-distributed written materials remain one of the most effective tools for campaigning — distributed by hand, or by mail. Such materials from anyone *other* than the candidates and their campaign committees — clearly identified as *independent* — are even *more* effective. So...

> Write and distribute your own note, letter, leaflet, newsletter or tabloid newspaper. Cover your neighborhood ("My family and I live nearby and feel this is so important that we've hand-delivered this to you...."). Distribute it to your business clients. *If* it is a sufficiently sincere and effectively written item, you might risk putting it on automobile wind- shields (the risk is recipients' irritation factor; But, I used to paper Silicon Valley with *Windshield Editions* of the Silicon Gulch Gazette and received *no* complaints — to my considerable amazement).

Finally, round up the loot and blitz-mail it throughout the voting district you want to impact. Do it as a newsletter or tabloid newspaper. Businesses sympathetic to your *cause* can be significant underwriters of the expense, by placing advertisements — and writing 'em off as a business expense. But, all that takes a minor but serious publishing operation.

Power of the [Computer] Press

Desktop publishing on personal computers *greatly* empower such efforts.

Targeting Problem

However, this is a *shotgun* approach. Figure about half the homes you reach won't have a resident who goes and votes. That means lots of time wasted if doing hand distribution; or ~50-cents per useful contact by mail — before the next postage-rate hike.

Personal Computer Targeting Solutions

So far, people can get the lists of registered voters from the Registrar of Voters — in [marginally useful] paper form or [powerful!] computerized form (magtape, floppies, perhaps online — depends on the budget and service orientation of the Registrar). <true in California and *some* other states>

Privacy Advocates, Beware!

God help us if and when those who are in power prohibit citizen access to such essential citizen-action information — probably enacting such prohibitions under the guise of *privacy protection*. Don't want to bother them voters with any o' that disturbing information from non-incumbents. ;-)

Computer *Power* for the People

With the voter reg data in your computer, you can generate *walking order* lists of voters and their addresses. This allows neighborhood leafleting volunteers to expend their limited time and energy efficiently. The voter reg data, of course, forms a mailing list base — trivially processed to limit only to favorable party registrants, addresses/areas, perhaps age groups (information often in the lists), etc. Merge-purged with other lists of interest, the utility per piece of literature-n-postage can be further enhanced.

Community & Homeowner/ Renter Empowerment

When I fought for equitable, community-oriented treatment of mountain and rural residents and homeowners in unincorporated San Mateo County, I used the County's property assessment lists, in electronic form — public records, rightfully so. Each parcel record indicated name and address of the owner — the first-cut mailing list. Many lived outside the County; deleted to reduce useless mailings. Homeowner exemptions were flagged — which I used for mailings targeted for homeowners. Those flagged as having residential improvements but without homeowner flags were targets for material concerning renter interests.

When I wanted to address property-based voter-action, the logical intersection of voter and assessor lists produced a powerful target list. For construction-related issues, I added the state lists of licensed building contractors, real estate brokers, and real estate salespeople. These records are available in many states *by law*.

Public Records Power

At least in California, all these records are open to the public under the State's *potent* Public Records Act, and — by explicit terms of that Act — copies are available for no more than the direct cost of duplication. Further refinements — power enhancements — are possible by marrying different versions of these records over time (longer-term residents, more experienced builders, brokers, etc.).

Public Records Caveat

One fly that occasionally appears in California's public records availability ointment: Because the Public Records Act is vague on the issue, some repressive agencies respond to requests for copies — which they must furnish — by offering only paper copies. Even when the records are maintained in electronic form and copies of large public-records bases are clearly of limited value in paper form. *Access to digital copies of digitally-maintained public records — for no more than direct duplication costs — needs to be explicitly and rigorously required in states' Public Records Acts.*.

Computer-Assisted Personal Political Empowerment

Professional political campaign support companies often charge naive campaigners and candidates big bucks for such lists and list processing. In fact, computer-capable folks can generate 'em on their [robust] personal computer — for their use and for use by under-funded candidates and causes (there's no such thing as an over-funded candidate or cause — except those you oppose; sorta like good taxes and bad taxes).

New Twist: Community Power by FaxModem

More and more folks can now receive messages by fax. Increasingly, those who have personal computers also have fax'es. Coupled with a fax-modem in the computer, this adds a powerful new tool for organizing fast community action — often needed as self-serving bureaucrats and arrogant elected officials seek to ram through policies before the impacted public can defend themselves (a consistent pattern in my San Mateo County... and elsewhere!). In the past year, my rural and mountain neighbors and I have begun organizing an increasingly broad and effective fax network. With a fax-modem (an Interfax 24/96) plugged into the phone-port on my Mac, it's trivial to draft a notice and have it fax'ed to *lots* of folks who have expressed interest in these issues — without ever having to touch hard-copy (much less re-feed it, over and over, through a manual fax). This supplements an additional wrinkle in community activism: Many of the recipi-

ents have low-cost copiers at home. Many of them have agreed to make copies of the notices as soon as the receive 'em, and pass 'em along to neighbors or post 'em on local community bulletin boards.

This gets around the serious problems of weekly community newspapers being too slow and/or too unwilling to provocatively publicize impending politicians' plans. *Really neat community action!*

[Hope this wan't too boring or too long-winded. Actually, there's lots more to say — especially about how to design effective direct-distribution written materials. But, that's more concerned with writing than computers.]

RE "The Computer Elite" & Computer Egalitarianism

Anyone capable of utilizing a computer can utilize it for significant personal political empowerment. But, it does require that (a) they have access to a computer, and (b) they be competent at utilizing it. Both of these entry barriers are non-trivial; the latter emphasizes the need for computer education — it's for personal empowerment, just as is drivers' education and social studies.

Folks who can't drive are considerably less empowered than those who can. Folks who can't use computers are considerably less enabled for acquiring and utilizing valuable information for astute decision-making and effective personal action, than those who can use computers. This is not an elitist view — it is simply a statement of reality as I see it.

These issues are part of why I feel that it is essential to teach kids — all kids, rich and poor, *elite* and *slum* — how to use computers. To the extent that we know how to use a computer (or how to drive) we have the potential of greatly increased personal empowerment. To the extent that we have that use-knowledge and can gain access to a computer (or a car, or the net, inaccessible to most folks), then we can implement that potential empowerment.

Personal computers — essentially defined, exclusively, as meaning computers that can be afforded by individual people — provide access to information- processing power, for individuals, that was previously available only to corporations, government and the very wealthy. (Nonetheless, multi-thousand dollar *personal* computer systems remain financially un-ownable by folks on very limited income — though they can often gain access through schools, loaners, donors, complimentary online accounts, etc. This is no different — nor more elitist, nor less egalitarian, than the fact that multi-thousand dollar cars are equally unavailable to folks on very limited income.)

The particular issue I am raising is that folks who know how to use computers, and have access to computers, can also have much more political power than most of them realize — far in excess of folks who don't know how to use computers or don't choose to use 'em (regardless of how poor or wealthy they may be).

Computers, Social Responsibility, and Political Action

by Bob Gleason

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In a recent discussion on The Well, there have been debates about how to respond to law enforcement attacks on hackers. *Topics included how to educate the pub-*

lic, whether it is better to use the metaphor of *war* or *peace* in responding, and how, in general, does one mobilize a large group to address what are perceived to be threats to civil liberties. George Gleason argues for conciliation, but recognizes that the resolution lies in the broader problem of public apathy and wider social issues.

Twenty-five percent of Americans own personal computers. It is most likely that these individuals come almost entirely from the more privileged half of society. Most of the people who use computers do so in routine capacities such as clerical jobs or academic writing. Awareness of the political and personal empowerment possibilities of the computer, is limited to a small subculture, many of whose members are concentrated in the Bay Area and the urban Northeast.

The fine points on which our arguments rest lie outside of the experience of most of the population. We are talking about specialized knowledge, and even though it has broad implications, it is difficult to understand without at least a certain familiarity with some of this specialized knowledge base. The position is similar to that of geneticists engaged in engineering microbes to alter plant behavior, and faced with public opposition to improbable consequences of their work.

The other face of the debate over *elitism* rests on the contents of my statement, to which I next turn.

Here we see a mainstream culture which is engaged in behavior that is ecologically and in other ways non-sustainable. We also see a vast scale of acquiescence in a political agenda of creeping authoritarianism. We also see the continuation of cultural norms that support greed and self-centeredness to the exclusion of other values.

A person can take an attitude of support for these cultural norms, or of mere acceptance of them, or of opposition to them. Those who support can be seen as doing so out of commitment to either an actual or potential benefit they may realize from their position: for instance a high-paying job in the military-industrial bureaucracy, or the symbolic identification with nationalistic themes, etc. More typical, and in fact the large majority by most measures, is a mood of acquiescence, plus or minus some grumbling. My argument is based on the position that acquiescence is nearly as problematic as active malice, and that acquiescence represents the utter abdication of personal responsibility for ethical choice.

Now for any given individual, one or more of the following can be true: -He or she is being manipulated by the media or other large institutions. -He or she is more interested in personal gain than in public issues which involve consequences to others. -He or she is under sufficient pressure of circumstance as to have no opportunity to engage in

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various acts of personal liberation, public opposition, or even basic creativity. (For example, parenthood plus a full-time job).

In the last case we can see at minimum the decision that the status quo is better than taking a chance on the unknown. Whether this decision is *right* or *wrong* isn't up to me. The question I have to raise though is, "How bad do things have to get before people rise up?" The extreme case can be seen in the black community: economic oppression, the destruction of an entire generation by drugs, poverty, violence, etc. One wonders why the signs of collective outrage have not become more evident in that community: the history of the political repression in the 60s supplies part of the answer.

However, most people in the mainstream aren't under that kind of extreme pressure of circumstances. For them, acquiescence is either a matter of being manipulated or being selfish.

Are we going to say that the public are brainwashed? Does this imply that we ourselves are relatively free of brainwashing? That would be awfully elitist, wouldn't it?; and as well, would create a mass *victim* role. If we truly believe that brainwashing by TV and so on is the cause of the predicament, we are left facing a force that is so powerful as to be unstoppable: How can our calls to freedom and lofty ideals ever begin to compete with the pleasures of the shopping mall and consumption lifestyle? How can our press conferences and pamphlets be heard and seen above the din of commercial jingles and junk mail? What have we to offer that can satisfy basic needs and desires? A meager existence in cramped housing and on a hippie diet, made tolerable by an ethic of sustainability? There is no substantial alternative economy anywhere in view. Our alternative culture is either barely able to survive or supported by rare cases of vast success whose effects even so are not able to build a truly large-scale example which can become self-supporting.

Instead, are we going to say that the public are acting selfishly? That would cast the majority in a moderate version of the role of *Good Germans*. Instead of an absence of insight and will, there would be an absence of ethics and basic compassion. The result of this is even more dire: it is not that people don't know what they want, it's that they want more or less what they're getting, *including* the consequences of intolerance and repression and injustice. In that case, what alternative have we to offer? Simulations of public executions, to stem the desire for the real thing? Simulations of other forms of evil, which serve to disguise good done in secret? That appears rather Machiavellian. Or instead should we fold inwardly and hide from the rising tide? A limited escape if that.

Sixty percent of the public don't vote. Sixty five percent of people under 35 years of age don't read newspapers or watch broadcast news (source Newsweek poll a few weeks ago). When *don't know* is compounded with *don't care*, we are in deep shit.

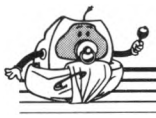
Fact is, I believe that there may be some way out. As Huxley said, "Nothing less than everything is truly sufficient." It does cause me much despair to see that the vast majority of our resources are committed to fighting a holding action where success is measured in the absence of defeat. I believe that a key element in the overall solution needs to take the form of cohesive examples of alternative economic and cultural entities. Integral neighborhoods, intentional communities (not the same as *hippie communes* thank you), cooperative enterprises; generating a sustainable *and* prosperous way of living by higher ideals and deeply considered values. Not isolated on little islands, but integrated with the overall economic and cultural sphere while retaining distinct identity. And of course, publicized as such, to provide accessible models from which to proceed further.

We all have our cynical moods. Contemplating the overall scale of the predicament of what used to be called *civilization*, is frightening and can as easily give rise to

despair as it does inspiration and hope for change. I think one thing we all share here is a commitment to creating a better world in many ways. Argument and debate are valuable ways of clarifying views and reaching a more cohesive synthesis.

My cause of despair is that a huge amount of talent and energy and resources are going into what is basically the equivalent of defence expenditures. On very many fronts. Realistically I'd like to suggest a concentration of political effort in one specific geographic area, to create and maintain an area which is conducive toward the creation of real alternative institutions of all kinds. From a strong and solid base like that, we can move outward and affect other areas. There are plenty of other ways to get at an agenda that actually moves forward instead of fighting defensively. I think the people who talk in terms of educating our opponents are on the right track: not us/them, but *all of us*, and solving problems together. "Nothing less than everything is truly sufficient," isn't a cry of despair but an affirmation of the need for everyone to play whatever part their conscience moves them toward.

Forward!



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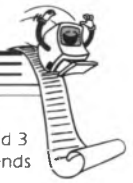

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DAs 10 . . MW II Command Keys
DAs 10 . . . . . MaxFiles
DAs 10 . . . . Port Watcher, v. 1.0
DAs 10 . . . . . SmartCal DA
DAs 10 . . . . . Time

DAs 11

DAs 11 . Area Codes/Time Zones DA, v. 1.0

DAs 11 . . . . . Dialer DA
DAs 11 . Fast Envelope DA, v. 1.0.3
DAs 11 . . . . . Time

Demos 1-4

Demo 1-4 . . . . . Discontinued

Demos 5

Demo 5 . . . . . STELLA™

Demos 6

Demo 6 TrueForm Fill-Out, 1.1d4

Demos 7

Demo 7 . . . . . Extend™, 1.05

Demos 8

Demo 8 . . . . DAtabase™ Builder

Demos 9

Demo 9 . . . . . KaleidaGraph, 1.1

Demos 10

Demo 10 . . . . . Dreams

Demos 11

Demo 11 . Constituent Manager

Demos 12

Demo 12 . . . . . Canvas, 2.0

Demos 13

Demo 13 . . . . . Full Impact, 1.1

Demos 14

Demo 14 . . . FoxBASE+/Mac, 1.1

Demos 15

Demo 15 . . . . . On Cue, 1.3
Demo 15 . ThePerfectWORD, 2.0
Demo 15 . TurboOptimizer Trial, 2.0

Demos 16

Demo 16 . . . . . Snap

Demos 17

Demo 17 . . . . . Business Sense
Demo 17 . . . . . MacAnalyst
Demo 17 . . . . . SteppingOut II

Demos 18

Demo 18 . . . . . DeskJet, 1.0a1
Demo 18 . . . . . HP DeskJet, 2.1
Demo 18 . . . . . Profits!

Demos 19

Demo 19 . . . . . 4th Dimension

Demos 20

Demo 20 . . . . . M.Y.O.B.

Demos 21

Demo 21 . . AH! Master Schedule
Demo 21 . . . . . Daily Deeds
Demo 21 . . . . . Preditor

Demos 22

Demo 22 . . . . . HistoMacro
Demo 22 . . . . . IncFill
Demo 22 . . . . . Metamorphosis
Demo 22 . . . . . Page Formatter
Demo 22 . . . . . Style Macro
Demo 22 . . . . . SUM Macro

Education 1

Edu. 1 . . . . . Atlas, 0.22
Edu. 1 . . . . . Camera
Edu. 1 . . Digital Logic Simulator, 2.5
Edu. 1 . . . . . Eliza, 1.3
Edu. 1 . . . . . Flashcard, 1.1
Edu. 1 . . Histogram Maker, 1.03
Edu. 1 . . . . . Logarithms
Edu. 1 . . . . . MathMaster, 2.1
Edu. 1 . . . . . XYZ Chart

Education 2

Edu. 2 . . . . . Grade, 0.96
Edu. 2 . . . . . HandsOn
Edu. 2 . . . . . Mac'N'States, 2.1"
Edu. 2 . . . . . MEC Demo
Edu. 2 . . . . . Orbital Mixing
Edu. 2 . . . Parametric Statistics, 2
Edu. 2 . . . . . Satellite Locator
Edu. 2 . . . Scientist's Helper, 2.5"
Edu. 2 . . . . . Tangent
Edu. 2 . . . . . Venn, 2
Edu. 2 . . . . . Weinberg, 0.52

Education 3

Edu. 3 . . . . . Algebra Tutor
Edu. 3 . . . . . FzzPlot, 7.2
Edu. 3 . . . . . Oyster Demo, 2.02
Edu. 3 . . . . . SocStat, 1.2

Education 4

Edu. 4 . . . . Astronomical Events
Edu. 4 . . . . . Binomial Test
Edu. 4 . . . . . Bright Stars, 2
Edu. 4 . . . . . CellPattern, 0.9
Edu. 4 . . . . . Earthplot, 3
Edu. 4 . . . . . Fish6, 1.001
Edu. 4 . . . . . Geography, 0.8
Edu. 4 . . . Learning Tool™ Demo
Edu. 4 . . . . . MacLinReg
Edu. 4 . . Monte Carlo 2xN, 1.01
Edu. 4 . . . . . Monte Carlo RxC
Edu. 4 . . . . . Volume and SA

Education 5

Edu. 5 . . . . . Convert
Edu. 5 . . . . . Gravitation Ltd
Edu. 5 . . . . . MacMORSE, 1.0B
Edu. 5 . . . . . MiniGuide, 2
Edu. 5 . . . . . OHM
Edu. 5 . . . . . Planets, 2
Edu. 5 . . . . . Sector, 1.3
Edu. 5 . . . . . UniCalc, 1.3

Education 6

Edu. 6 . . . . . BrainBusters!
Edu. 6 . . . . . Math Mountain - ADDITION, 2.1
Edu. 6 . . Monster Chase Math +
Edu. 6 . . . . Number Investigator
Edu. 6 . . . . . TimeLines

Education 7

Edu. 7 . . . . . Cabri, 2.5
Edu. 7 . . . . . ChemIntosh Demo
Edu. 7 . . ChemIntosh™ MMCalc
Edu. 7 . . . . . Demoaxis
Edu. 7 . . . . . Elements, 1.2

Education 8

Edu. 8 . . . . . Ballistic
Edu. 8 . . . . . Einstein
Edu. 8 . . . . . Grafttech
Edu. 8 . . . . . Kepler
Edu. 8 . . . . . MacFormula
Edu. 8 . . . . . MacGraph, 5.2
Edu. 8 . . MultiFlow Demo, 1.06
Edu. 8 Multiple Linear Regression
Edu. 8 . . . . . MultiReg
Edu. 8 . . . . . Oscillator
Edu. 8 . . . . . PadDesign
Edu. 8 . . . . . Potential
Edu. 8 . . . . . Tiny Tafel

Education 9

Edu. 9 . . . . . AppleTones, 0.1
Edu. 9 . . . . . Ax Headroom
Edu. 9 . . CZ-101/5000 Librarian, 0.94
Edu. 9 . . DX/TX Patch Converter
Edu. 9 . . . . . Ear Trainer, 1.2
Edu. 9 . . . . . Esurientes
Edu. 9 . . . . . FB-01 Edit
Edu. 9 . . . . . Interval
Edu. 9 . . . . . MacKeybd
Edu. 9 . . . MIDI Program Selector
Edu. 9 . . . . . Midi Recorder
Edu. 9 . . . . . MIDI Terminal
Edu. 9 MIDI>TEXT CONVERT, 0.3
Edu. 9 . . . . . MIDIdisplay, 1.1
Edu. 9 . . . . . MIDIecho, 1.1
Edu. 9 . . . . . MIDIScope™, 1.1

Education 10

Edu. 10 . . . . . CalcPlot, 2
Edu. 10 . . . . . Evolutions, 1.05
Edu. 10 . . . . Fun with Regions II
Edu. 10 . . . . Latin Conjugation Exercises
Edu. 10 . . . . . Latin Declension Exercises
Edu. 10 . . . . . Magic Square, 4
Edu. 10 . . . . . Numberator
Edu. 10 . . . . . Quiz Master, 1.1
Edu. 10 . . . . . R-Mapper, 1.01
Edu. 10 . . . . . Roman Dates
Edu. 10 . . . . . Seven Blocks

Education 11

Edu. 11 . . . . . Baby Demo, 2.1
Edu. 11 . . . . . BLOOD
Edu. 11 . . . . . Diet Helper, 2
Edu. 11 . . . . . EKTEACH
Edu. 11 . . . . . macMRI, 0.50ß
Edu. 11 . . . . . MEAXIS, 0.1
Edu. 11 . . . . . Veggies, 2

Education 12

Edu. 12 . . . . A Turing Machine Simulator, 2.00d
Edu. 12 Generate Numbers, 1.02
Edu. 12 . . . . . NumberCrunch
Edu. 12 . . . . OpenChannel, 1.1
Edu. 12 . . . . . Wind Chill Factor
Edu. 12 . . . Worm Statistics, 0.05
Edu. 12 . . . . . XYGraf

Education 13

Edu. 13 . . . . . Al Mu'azzen
Edu. 13 . . . . . Area Properties
Edu. 13 . . . . . EasyMath
Edu. 13 . . . . . Lunar Exposure Calculator
Edu. 13 . . . . . Minaret
Edu. 13 . . . . . NuLife, 1.1
Edu. 13 . . . . . Solve, 1.1
Edu. 13 . . . . . StarChart, 2

Education 14

Edu. 14 . . . . . Astrology Forecast
Edu. 14 . . . . . MacMath Demo, 2
Edu. 14 . . . . . MacRoots, 5.03

Education 15

Edu. 15 . . . . . CLIPS, 4.2
Edu. 15 . . . . . DelayCalc, 1.5
Edu. 15 . . . . . Jupiterium
Edu. 15 . . . . . MacAnorous, 2
Edu. 15 . . . . . VocabQuiz, 1.4

Education 16

Edu. 16 . . . . . Chaos
Edu. 16 IFS Decompression, 1.21
Edu. 16. . . . . Mactivation, 3.2
Edu. 16. . . . . Math21, 0.6
Edu. 16 . . . . . The Help System

Education 17

Edu. 17 . . . . . Sychroncity Demo
Edu. 17 . . . . . Periodic Table

Education 18

Edu. 18 . . . . . ALG/Simplify
Edu. 18 . . Government Booklets, 1.0
Edu. 18. . . . . Hurricane
Edu. 18. . . . . I Ching DA
Edu. 18. . . . . Math Tutor
Edu. 18 . . Proportions Calculator
Edu. 18 . . . . . Road Atlas
Edu. 18 . . . . . Stat Solver, 1.0

Education 19

Edu. 19 . . . QuickPie, 2.0 Demo
Edu. 19. . . . . Ear Trainer
Edu. 19 . . Music Fun, 1.5 Demo

Education 20

Edu. 20 . . . . . DyanaEdit, 1.0a
Edu. 20 . . . . . Evol-o-matic
Edu. 20 . . . . . Morse Teacher
Edu. 20 . . . . . Multiflow II™

Education 21

Edu. 21 . . . . . Biorhythm II
Edu. 21 . . . . . Cal/Neva Roads
Edu. 21 . . . . . Jabberwocky
Edu. 21 . . . . . MacFormula, 2.0
Edu. 21 . . . . . MacMap
Edu. 21 . . . . . MATH Lock
Edu. 21 . . McHurricane™ Demo
Edu. 21 . . . . . NIST Time, 1.1
Edu. 21 . . . . . Southwest Roads
Edu. 21 . . . . . Think Ahead+, 2.0

Education 22

Edu. 22 . . . . . Dr. Circuit
Edu. 22 . . . . . Projectionist™
Edu. 22 . . . . . UNITize Demo

Education 23

Edu. 23 . . . Gear CValc, v. 1.0b1
Edu. 23 . . . . . HMO fldr, v. 1.0
Edu. 23 . . . . . StudioCalc™

FKeys

FKey 1 . . . . . !THE!Clock
FKey 1 . . . . . AntiFreeze
FKey 1 . . . . . AutoBlack, 1.5
FKey 1 . . . . . BigCursor
FKey 1 . . . . . Bomb Alert! FKEY
FKey 1 . . . . . Boot Logger
FKey 1 . . . . . BragKEY
FKey 1 . . . . . CacheToggle
FKey 1 . . . . Clipper Key, 1.5/1.6
FKey 1 . . . . . ClockKey
FKey 1 . . . . . Copy from screen
FKey 1 . . . . . CrashGuard
FKey 1 . . . . . DA Key, 2.02
FKey 1 . . . . . Datamagik™'s HomeCursor
FKey 1 . . . . . Datamagik™'s ShrinkWindow, 0.1"
FKey 1 . . . . . Date Key, 2.05
FKey 1 . . . . . DirCreator
FKey 1 . . . . . DirDelete
FKey 1 . . . . . Disk-File Utility, 1.8
FKey 1 . . . . . DisplayRes, 2.1
FKey 1 . . . . . EscapeKey, 1.1
FKey 1 . . . . . ExitToShell
FKey 1 . . . . . Extras
FKey 1 . . . . . FadeKey
FKey 1 . . . . . Findswell™ Demo
FKey 1 . . . . . Fit To Mac
FKey 1 . . . . . FKey Manager
FKey 1 . . . . . FKEY-Close Window
FKey 1 . . . Fkey-DA Sampler, 3.1
FKey 1 . . FKEY-Send Window To Rear
FKey 1 FKEY-Toggle Window Size
FKey 1 . . . . . FKeyboard
FKey 1 . . . . . FkeyView, 2.5
FKey 1 . . . . . Flush
FKey 1 . . FontFkeyDAPntgSound Sampler, ∞+1
FKey 1 . . . . . Fontsie, 3.06
FKey 1 . . . . . Formfeed FKEY 1
FKey 1 . . . . . immortality, 0.94
FKey 1 . . . . . Init Disk, 2.3a
FKey 1 . . . . . KeyPad, 1.1
FKey 1 . . . . . LaserQuotes
FKey 1 . . . . . LaserKeyInstaller
FKey 1 . . . . . LaunchMaker
FKey 1 . . . . . Locare, 1.8d1
FKey 1 . . . . . LunarCrack
FKey 1 . . . . . MemKey
FKey 1 . . . . . Menu Clock, 3
FKey 1 . . . . . MenuSelect, 3.1
FKey 1 . . . . . MoveOver INIT
FKey 1 . . . . . Moving Lines
FKey 1 . . . . . NoFontScaling
FKey 1 . . . . . OpenDAs, 2
FKey 1 Orator™ InstallerFkey, 1.1
FKey 1 . . . . . Pad-Lock™ Installer
FKey 1 . . . . . PanicKey, 1.16
FKey 1 . . . . . PaperSize
FKey 1 . . . . . Pathname
FKey 1 . . . . . PrinterBurp
FKey 1 . . . . . PrintKey
FKey 1 . . . . . Quote Init, 2
FKey 1 . . . Resource Viewer, 4.7
FKey 1 . . . . . Restart.Fkey
FKey 1 . . . Reverse Screen, 1.0b1
FKey 1 . . . . . ReverseFormfeed 1
FKey 1 . . . . . Screen to Clip FKey
FKey 1 . . . . . SFScrollInit
FKey 1 . . . . . Shutdown.Fkey
FKey 1 . . . . . Sleep
FKey 1 . . . . . Space Warp
FKey 1 . . . . . SpecialKey
FKey 1 . . . . . StartupDesk INIT
FKey 1 . . . . . SUS init
FKey 1 . . . . . The Narrator
FKey 1 . . . . . UnPack FKey, 2
FKey 1 . . . . . Version Reader, 5.1
FKey 1 . . . . . Window FKey
FKey 1 . . . . . Wrap

Fonts 1

Font 1 . . . . . Aldous
Font 1 . . . . . Alice
Font 1 . . . . . Art Deco
Font 1 . . . . . Basel
Font 1 . . . . . Black Shadow
Font 1 . . . . . Borders
Font 1 . . . . . Bubbles
Font 1 . . . . . Camelot
Font 1 . . . . . Candy
Font 1 . . . . . Cartoon
Font 1 . . . . . Cavanaugh
Font 1 . . . . . Centura
Font 1 . . . . . Circus
Font 1 . . . . . Cirth
Font 1 . . . . . Clinton
Font 1 . . . . . Coptic
Font 1 . . . . . Cream
Font 1 . . . . . Cursive
Font 1 . . . . . Dali
Font 1 . . . . . Dali
Font 1 . . . . . Demographics
Font 1 . . . . . Demotic
Font 1 . . . . . Elvish
Font 1 . . . . . Eon
Font 1 . . . . . Epsilon
Font 1 . . . . . Fancy Caps
Font 1 . . . . . Fargo
Font 1 . . . . . Finney
Font 1 . . . . . Fletcher
Font 1 . . . . . Godfrey
Font 1 . . . . . Hamburg
Font 1 . . . . . Hollywood Thin
Font 1 . . . . . Houston
Font 1 . . . . . Infocom
Font 1 . . . . . Isengard
Font 1 . . . . . Las Vegas
Font 1 . . . . . Memphis
Font 1 . . . . . Misc. Pictures
Font 1 . . . . . Oblique
Font 1 . . . . . Padova
Font 1 . . . . . Palo Alto
Font 1 . . . . . Premiere
Font 1 . . . . . Ravenna
Font 1 . . . . . Rivendell
Font 1 . . . . . Runes
Font 1 . . . . . Spokane
Font 1 . . . . . Thomas
Font 1 . . . . . Tile
Font 1 . . . . . Tombstone
Font 1 . . . . . Tombstone
Font 1 . . . . . Ultra
Font 1 . . . . . Venice
Font 1 . . . . . Venice
Font 1 . . . . . Wartburg
Font 1 . . . . . White Shadow

Fonts 2

Font 2 . . . . . Alexis
Font 2 . . . . . Armonk
Font 2 . . . . . Bauhaus
Font 2 . . . . . Boxie
Font 2 . . . . . Brennero
Font 2 . . . . . Broadway
Font 2 . . . . . Bubbles
Font 2 . . . . . Cavanaugh
Font 2 . . . . . Century
Font 2 . . . . . Chancery
Font 2 . . . . . Cologne
Font 2 . . . . . Cyril
Font 2 . . . . . Detroit
Font 2 . . . . . Dots
Font 2 . . . . . Floor Plan
Font 2 . . . . . Frazier
Font 2 . . . . . Future
Font 2 . . . . . Hanford
Font 2 . . . . . Hollywood
Font 2 . . . . . Hood River
Font 2 . . . . . Icon
Font 2 . . . . . International
Font 2 . . . . . Jones
Font 2 . . . . . Koln
Font 2 . . . . . kroY weN
Font 2 . . . . . L.A.
Font 2 . . . . . Lambda
Font 2 . . . . . LED
Font 2 . . . . . Leningrad
Font 2 . . . . . Lilliput
Font 2 . . . . . London
Font 2 . . . . . Long Island
Font 2 . . . . . Madrid
Font 2 . . . . . Manhattan
Font 2 . . . . . Marie
Font 2 . . . . . McCloud

Font 2 . . . . . Microsoft
Font 2 . . . . . Milano
Font 2 . . . . . Moscow
Font 2 . . . . . Music
Font 2 . . . . . NY Nights
Font 2 . . . . . Omega
Font 2 . . . . . Paint
Font 2 . . . . . Park Avenue
Font 2 . . . . . Rangers
Font 2 . . . . . Ravenna
Font 2 . . . . . Rome
Font 2 . . . . . San Quentin
Font 2 . . . . . Scan
Font 2 . . . . . Script
Font 2 . . . . . Seattle
Font 2 . . . . . Shoppe
Font 2 . . . . . Silicon Val
Font 2 . . . . . Small
Font 2 . . . . . Smallish
Font 2 . . . . . Smolensk
Font 2 . . . . . States
Font 2 . . . . . Stencil
Font 2 . . . . . Stiletto
Font 2 . . . . . Symbol
Font 2 . . . . . Tiffany
Font 2 . . . . . Tinytown
Font 2 . . . . . Toyland 1
Font 2 . . . . . Toyland 2
Font 2 . . . . . Ultra
Font 2 . . . . . Uncial
Font 2 . . . . . Vancouver
Font 2 . . . . . Wall Street
Font 2 . . . . . Zurich

Fonts 3

Font 3 . . . . . Andover
Font 3 . . . . . Andover
Font 3 . . . . . APL
Font 3 . . . . . austin math font
Font 3 . . . . . Babylon
Font 3 . . . . . Camelot
Font 3 . . . . . ChicMath
Font 3 . . . . . Copenhagen
Font 3 . . . . . Demographics
Font 3 . . . . . Dover
Font 3 . . . . . Dover-PS
Font 3 . . . . . Elite
Font 3 . . . . . Erie
Font 3 . . . . . FontDisplay™, 5.4
Font 3 . . . . . Fractions
Font 3 . . . . . GenFracXR
Font 3 . . . . . Monaco
Font 3 . . . . . Music Fonts
Font 3 . . . . . Music2
Font 3 . . . . . Nordic
Font 3 . . . . . Palo Alto
Font 3 . . . . . Pica
Font 3 . . . . . Pica2
Font 3 . . . . . Princeton 4.0
Font 3 . . . . . Script Math
Font 3 . . . . . Taliesin
Font 3 . . . . . Thin
Font 3 . . . . . Troyes
Font 3 . . . . . Washingtor

Fonts 4

Font 4 . . . . . +/-FontScaling, 1.1
Font 4 . . . . . Apple I
Font 4 . . . . . Athens
Font 4 . . . . . Banner
Font 4 . . . . . Bolzano
Font 4 . . . . . Boston II/MacWrite
Font 4 . . . . . Boston II/Word
Font 4 . . . . . Bugatti
Font 4 . . . . . Chi-nite
Font 4 . . . . . Chicago
Font 4 . . . . . Font Doubler, 1.3
Font 4 . . . . . Fontsie, 3.06
Font 4 . . . . . Hollywood Stretch
Font 4 . . . . . Lachine
Font 4 . . . . . Lake Geneva
Font 4 . . . . . NoFontScaling
Font 4 . . . . . Playbill
Font 4 . . . . . Sierra
Font 4 . . . . . Spokanne
Font 4 . . . . . Sri Lanka
Font 4 . . . . . Torino
Font 4 . . . . . Toronto
Font 4 . . . . . TorontoFix
Font 4 . . . . . Tucson
Font 4 . . . . . Vienna

Fonts 5

Font 5 . . . . . Abu Dhabi
Font 5 . . . . . AntiParticle
Font 5 . . . . . Arabic
Font 5 . . . . . CopyFit*
Font 5 . . . . . Floor Plan
Font 5 . . . . . FontMaster '88
Font 5 . . . . . GGB Greek Fonts
Font 5 . . . . . Gibson
Font 5 . . . . . Greek
Font 5 . . . . . Greek.A
Font 5 . . . . . Greek.D
Font 5 . . . . . GreekAntiPar
Font 5 . . . . . Icon
Font 5 . . . . . Japanese
Font 5 . . . . . Kana
Font 5 . . . . . MacPaint
Font 5 . . . . . Minneapolis
Font 5 . . . . . Mobile
Font 5 . . . . . Moscow
Font 5 . . . . . Old Church Slavonic
Font 5 . . . . . Phoenix
Font 5 . . . . . Poker
Font 5 . . . . . Rehovot
Font 5 . . . . . Salamis
Font 5 . . . . . Schematic
Font 5 . . . . . Sparta
Font 5 . . . . . States
Font 5 . . . . . ToyLand
Font 5 . . . . . Troyes
Font 5 . . . . . Wartburg

Fonts 6

Font 6 . . . . . A.raindrop.ps
Font 6 . . . . . Adobe.ps
Font 6 . . . . . AnyText.ps
Font 6 . . . . . AtoZ.ps
Font 6 . . . . . B.cube.ps
Font 6 . . . . . BMUG.ps
Font 6 . . . . . bubble graphics
Font 6 . . . . . Burst.ps
Font 6 . . . . . C.cliptype.ps
Font 6 . . . . . Collage.ps
Font 6 . . . . . Cube.ps
Font 6 . . . . . Cunei
Font 6 . . . . . D.speedshow.ps
Font 6 . . . . . Disable page
Font 6 . . . . . DNA.ps
Font 6 . . . . . E.linebox
Font 6 . . . . . ehandler.ps
Font 6 . . . . . Enable page
Font 6 . . . . . Escher's Fish.postscript
Font 6 . . . . . F.magnify.ps
Font 6 . . . . . Falling.ps
Font 6 . . . . . Font Downloader, 2.0b4
Font 6 . . . . . FontList.ps
Font 6 . . . . . Form.ps
Font 6 . . . . . G.pops.ps
Font 6 . . . . . GE screen fonts
Font 6 . . . . . GenerEle
Font 6 . . . . . gradie.ps
Font 6 . . . . . GrayHel
Font 6 . . . . . Grays.ps
Font 6 . . . . . H.whiteburst
Font 6 . . . . . Halftone
Font 6 . . . . . I.clipburst
Font 6 . . . . . J.outline
Font 6 . . . . . K.Lineleft
Font 6 . . . . . L.Bite.ps
Font 6 . . . . . LaserText
Font 6 . . . . . LaserText (Reid)
Font 6 . . . . . laserwriter-12.ps.1
Font 6 . . . . . M.machine
Font 6 . . . . . Mailing Labels.ps
Font 6 . . . . . Manual Feed Patch
Font 6 . . . . . ModerPrintBold
Font 6 . . . . . N.bullseye
Font 6 . . . . . O.shadowtype
Font 6 . . . . . P.blowup
Font 6 . . . . . PostScript Dumper, 2.5
Font 6 . . . . . PostScript Spooler
Font 6 . . . . . Postscript Tester, 1.1
Font 6 . . . . . Q.swash
Font 6 . . . . . R.Zapf
Font 6 . . . . . Reset.ps
Font 6 . . . . . rosebud.ps
Font 6 . . . . . Rotate.ps
Font 6 . . . . . S.trans
Font 6 . . . . . SansSerif
Font 6 . . . . . SendPS
Font 6 . . . . . Shadow.ps
Font 6 . . . . . Sliced.ps
Font 6 . . . . . Spiral.ps
Font 6 . . . . . Star.ps
Font 6 . . . . . T.Image
Font 6 . . . . . TaxForm.ps
Font 6 . . . . . U.tube.ps
Font 6 . . . . . uartpatch.ps
Font 6 . . . . . UtilSam
Font 6 . . . . . V.brush.ps
Font 6 . . . . . W.glow
Font 6 . . . . . X.linefountain.ps
Font 6 . . . . . Y.spotfountain
Font 6 . . . . . Z.Defaultfountain

Fonts 7

Font 7 . . . . . Beverly Hills
Font 7 . . . . . Beverly Hills Large
Font 7 . . . . . Calligraphic
Font 7 . . . . . ChicagoSymbols
Font 7 . . . . . Hamburg
Font 7 . . . . . HGDSSanSerif
Font 7 . . . . . HiTecHGDS
Font 7 . . . . . Louis
Font 7 . . . . . Louisville
Font 7 . . . . . Mod. Chicago
Font 7 . . . . . ModernPrintBold
Font 7 . . . . . TiffanyHG

Fonts 8

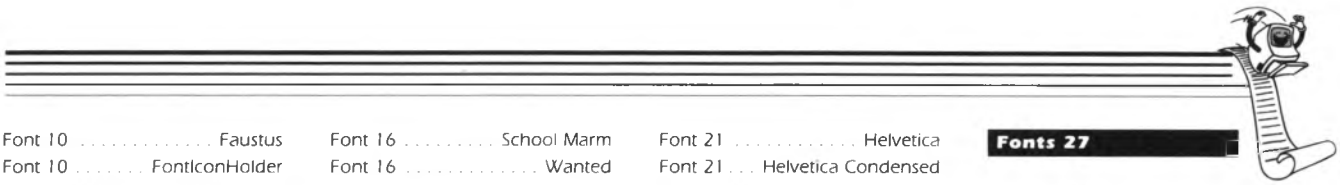
Font 8 . . . . . Apple I
Font 8 . . . . . Athens
Font 8 . . . . . Boxie
Font 8 . . . . . Courier
Font 8 . . . . . Drawing*
Font 8 . . . . . Ellesmere
Font 8 . Fabulous Fractions Fonts
Font 8 . . . . . Gavarnie
Font 8 . . . . . Geneva
Font 8 . . . . . Greenbay
Font 8 . . . . . HelveticaFractions
Font 8 . . . . . Herford
Font 8 . . . . . Hood River
Font 8 . . . . . Kendall
Font 8 . . . . . MacSymbols
Font 8 . . . . . Madeira
Font 8 . . . . . Manteca
Font 8 . . . . . Norwood
Font 8 . . . . . Oblique
Font 8 . . . . . Silicon Beach
Font 8 . . . . . Sri Lanka
Font 8 . . . . . Swan Song
Font 8 . . . . . Uncial

Fonts 9

Font 9 . . . . . Braille Fonts
Font 9 . . . . . Doodiddles Fonts
Font 9 . . . . . Neshota

Fonts 10

Font 10 . . . . . ArchiMedium
Font 10 . . . . . Chester
Font 10 . . . . . ClassicaHeavy
Font 10 . . . . . Classicaltalic
Font 10 . . . . . ClassicaRoman



Font 10 . . . . . Faustus
Font 10 . . . . . FontIconHolder
Font 10 . . . . . Gordon
Font 10 . . . . . IBMKlone
Font 10 . . . . . MiamiNights
Font 10 . . . . . ParkHaven
Font 10 . . . . . RichardMurray
Font 10 . . . . . Scrapart
Font 10 . . . . . Style
Font 10 . . . . . ToulouseLautrec

Fonts 11

Font 11 . . . . . Bangkok
Font 11 . . . . . Devanagari
Font 11 . . . . . Flintstone
Font 11 . . . . . MacInHebrew, 2
Font 11 . MacInHebrew2.0-fonts
Font 11 . . . . . Melb Bengali
Font 11 . . . . . NSWIT Saigon
Font 11 . . . . . Rodchenko
Font 11 . . . . . The Styler
Font 11 . . . . . Thomas

Fonts 12

Font 12 . . . . . Alderney
Font 12 . . . . . Canaith
Font 12 . . . . . ChiTown
Font 12 . . . . . OCR
Font 12 . . . . . Palencia
Font 12 . . . . . Trondheim

Fonts 13

Font 13 . . . . . Atlantic City
Font 13 . . . . . Beverly Hills
Font 13 . . . . . Mod. Chicago
Font 13 . . . . . Music

Fonts 14

Font 14 . . . . . Bill's Dingbats
Font 14 . . . . . Code39Barcode
Font 14 . . FOND# list Adobe/NSI
Font 14 . . . Font Finder™, 3.0b0
Font 14 . . . . . Font Lister
Font 14 Font Names & Numbers
Font 14 . . . . . International
Font 14 . . . . . Kathlita
Font 14 . . . . . N-Font™

Fonts 15

Font 15 . . . . . Clairvaux Master
Font 15 . . . . . New Hiragana
Font 15 . . . . . York Master

Fonts 16

Font 16 . . . . . 5th Ave Bold
Font 16 . . . . . 5th Ave Raised
Font 16 . . . . . Band Wagon
Font 16 . . . . . No Frills
Font 16 . . . . . School Marm
Font 16 . . . . . Wanted

Fonts 17

Font 17 . . . . . Alison
Font 17 . . . . . ElGarrett
Font 17 . . . . . FutaruBoldCond
Font 17 . . . . JacksonvilleOldStyle

Fonts 18

Font 18 . . . . . Amdahl
Font 18 . . . . . Apple Icons
Font 18 . . . . . Dragon
Font 18 . . . . . Gdansk
Font 18 . . . . . Kolona
Font 18 . . . . . Krakow
Font 18 . . . . . Lamoni
Font 18 . . . . . Meranda
Font 18 . . . . . Motown
Font 18 . . . . . Muscatine
Font 18 . . . . . NASA
Font 18 . . . . . Newton
Font 18 . . . . . Overs
Font 18 . . . . . Paris
Font 18 . . . . . Patriot
Font 18 . . . . . SketchDemo
Font 18 . . . . . Strike Easy
Font 18Varityper FontMaster, 1.1
Font 18 . . . Varityper FontWizard

Fonts 19

Font 19 . . . . . Beneventan
Font 19 . . . . . Clairvaux
Font 19 . . . . . Koine Greek
Font 19 . . . . . London
Font 19 . . . . . Meranda
Font 19 . . . . . Warszawa
Font 19 . . . . . York

Fonts 20

Font 20 . . . . . Airbrush
Font 20 . . . . . AppleFont
Font 20 . . . . . ArchiSample
Font 20 . . . . . Armadillo
Font 20 . . . . . BMUGAsian
Font 20 . . . . . Bul
Font 20 . . . . . CocaCola
Font 20 . . . . . DraftsmanDemo
Font 20 . . . . . FatAppleFont
Font 20 . . . . . KabelBold
Font 20 . . . . . KabelDemi
Font 20 . . . . . KabelMedium
Font 20 . . . . . KabelPlain
Font 20 . . . . . Shpfltnat
Font 20 . . . . . Slant Informal
Font 20 . . . . . ThinAppleFont

Fonts 21

Font 21 . . . . . Courier
Font 21 . . . . . Helvetica
Font 21 . . . Helvetica Condensed
Font 21 . . . . . Helvetica Narrow
Font 21 . . . . . Symbol
Font 21 . . . . . Times

Fonts 22

Font 22 . . . . . Avant Garde
Font 22 . . . . . Bookman
Font 22New Century Schoolbook
Font 22 . . . . . Optima
Font 22 . . . . . Palatino
Font 22 . . . . . Souvenir
Font 22 . . . . . Zapf Chancery
Font 22 . . . . . Zapf Dingbats

Fonts 23

Font 23 . . . American Typewriter
Font 23 . . . . . Benguiat
Font 23 . . . . . Friz Quadrata
Font 23 . . . . . Garamond
Font 23 . . . . . Glypha
Font 23 . . . . . Helvetica Black
Font 23 . . . . . Helvetica Light
Font 23 . . . . . Lubalin Graph
Font 23 . . . . . Machine

Fonts 24

Font 24 . . . . . Galliard
Font 24 . . . Helvetica Condensed
Font 24 . . . . . Korinna
Font 24 . . . . . Melior
Font 24 . . . . . New Baskerville
Font 24 . . . . . Trump Mediaeval

Fonts 25

Font 25 . . . . . Bodoni
Font 25 . . . . . Century Old Style
Font 25 . . . . . Cheltenham
Font 25 . . . . . Franklin Gothic
Font 25 . . . . . Goudy
Font 25 . . . . . Park Avenue
Font 25 . . . . . Sonata

Fonts 26

Font 26 . . . . . Aachen Bold
Font 26 . . . . . Brush Script
Font 26 . . . . . Cooper Black
Font 26 . . . . . Freestyle Script
Font 26 . . . . . Hobo
Font 26 . . . . . Letter Gothic
Font 26 . . . . . News Gothic
Font 26 . . . . . Orator
Font 26 . . . . . Prestige Elite
Font 26 . . . . . Revue
Font 26 . . . . . Stencil
Font 26 . . . . . Tiffany
Font 26 . . . . . University Roman

Fonts 27

Font 27 . . . . . Carta
Font 27 . . . . . Futura Book
Font 27 . . . . . Lucida
Font 27 . . . . . Univers
Font 27 . . . . Univers Condensed

Fonts 28

Font 28 . . . . . Stone Informal
Font 28 . . . . . Stone Sans Serif
Font 28 . . . . . Stone Serif

Fonts 29

Font 29 . . . . . Corona
Font 29 . . . . . Eurostile
Font 29 . . . . . Excelsior
Font 29 . . . . . Futura 2
Font 29 . . . . . Futura Condensed

Fonts 30

Font 30 . . . . . Belwe Medium
Font 30 . . . . . Caslon 3
Font 30 . . . . . Caslon 540
Font 30 . . . . . Goudy Heavy
Font 30 . . Helvetica Compressed
Font 30 . . . . . Italia Medium
Font 30 . . . . . Lucida Sans
Font 30 . . . . . Memphis Light

Fonts 31

Font 31 . . . . . Eras Medium
Font 31 . . . . . Helvetica Black
Font 31 . . . . Helvetica UltraLight
Font 31 . . . . . Janson Text
Font 31 . . . . . Kabel Medium
Font 31 . . . . . MICR
Font 31 . . . . . OCRA
Font 31 . . . . . OCRB

Fonts 32

Font 32 . . . . . Clarendon
Font 32 . . . . . Helvetica Heavy
Font 32 . . . . . Kaufmann
Font 32 . . . . . New Caledonia
Font 32 . . . New Caledonia Black
Font 32 . . . . . Peignot Light
Font 32 . . . . . TimesTen

Fonts 33

Font 33 . . . . . Americana
Font 33 . . . . . Clearface
Font 33 . . . . . Serif Gothic

Fonts 34

Font 34 . . . . . Caslon Open Face
Font 34 . . . . . Centennial

Font 34 . . . Centennial Black
Font 34 . . Century Expanded
Font 34 . . . . . Frutiger
Font 34 . . . . . Serifa

Fonts 35

Font 35 . . . . . Avenir
Font 35 . . . . . Avenir Black
Font 35 . . . . . Garamond 3
Font 35 . . . . Stemple Garamond
Font 35 . . Universal Greek/Math
Font 35 . . . . . Universal News
Font 35 . . . . . Weiss

Fonts 36

Font 36 . . . . . Antique Olive
Font 36 . . . . . Concorde
Font 36 . . . . . Gothic 13
Font 36 . . . . . Life
Font 36 . . . . . Tempo Heavy
Font 36 . . . . . Walbaum

Fonts 37

Font 37 . . . . . Ascii/FontPk
Font 37 . Beneventan LaserFontu
Font 37 . . . . . CocaCola
Font 37 . . . . . Cornwall
Font 37 . . . . . Grayscale 2.0
Font 37 . . . . . Mod bold font
Font 37 . . . . . PompeiiFont
Font 37 . . . . . PostCrypt
Font 37 . . . . . VersalFont

Fonts 38

Font 38 . . . . . Black Chancery
Font 38 . . . . . Black Forest
Font 38 . . . . . Heidelberg
Font 38 . . . . . Middleton
Font 38 . . . . . Stymie Light
Font 38 . . . . . Woodcut

Fonts 39

Font 39 . . . . . Arnold Boecklin
Font 39 . . . . . Dom Casual
Font 39 . . . . . Fette Fraktur
Font 39 . . . . . Folio
Font 39 . . . . . Helvetica Inserat
Font 39 . . . . . Linoscript
Font 39 . . . . . Linotext
Font 39 . . . . . Post Antiqua
Font 39 . . . . . Present

Fonts 40

Font 40 . . . . . Akzidenz Grotesk
Font 40 . . . . . Bauer Bodoni
Font 40 . . . . . Impressum
Font 40 . . . . . New Aster 1 & 2
Font 40 . . . . . VAG Rounded

Fonts 41

Font 41 . . . . . Adobe Garamond
Font 41 Adobe Garamond Expert
Font 41 . . . . . Candida
Font 41 . . . . . Franklin Gothic 2

Fonts 42

Font 42 . . . . . Utopia
Font 42 . . . . . Utopia Expert

Fonts 43

Font 43 . . . . . Black Chancery
Font 43 . . . . . Black Forest
Font 43 . . . . . Heidelberg
Font 43 . . . . . Middleton
Font 43 . . . . . Stymie Light
Font 43 . . . . . Woodcut

Fonts 44

Font 44 . . . . . Chasline
Font 44 . . . . . Larcombe Caps

Fonts 45

Font 45 . . . . . Offenbach Caps
Font 45 . . . . . Polo-SemiScript-1
Font 45 . . . . . Polo-SemiScript-2

Fonts 46

Font 46 . . . . . EncycloFont
Font 46 . . . . . Font Bank
Font 46 . . . . . Munchner Caps
Font 46 . . . . . Pixie Font
Font 46 . . . . . Slab Face

Fonts 47

Font 47 . . . . . Elzeviler
Font 47 . . . . . Graphic Light
Font 47 . . . . . Igloo Laser
Font 47 . . . . . Linear B
Font 47 . . . . . Muriel
Font 47 . . . . . Rudelsberg

Games 1

Gam. 1 . . . . . Adventures Plus
Gam. 1 . . . . . Ashes
Gam. 1 . . . . . Asteroids
Gam. 1 . . . . . Backgammon
Gam. 1 . . . . . Bagels Game
Gam. 1 . . . . . Banzai!
Gam. 1 . . . . . Bash Big Blue
Gam. 1 . . . . . Billiards, 85.12.08
Gam. 1 . . . . . BlobMgr Demo
Gam. 1 . . . . . Break the Bricks
Gam. 1 . . . . . Brickles, 7

Games 2

Gam. 2 . . . . . Ballistics, 2
Gam. 2 . . . . . Bouncing Balls!
Gam. 2 . . . . . Bricks, 1.03
Gam. 2 . . . . . CatchMe
Gam. 2 . . . . . Connect Four
Gam. 2 . . . . . CryptoSolve
Gam. 2 . . . . . Daleks, 0.3
Gam. 2 . . . . . DeckEdit, 1.1D1
Gam. 2 . . . . . Destroyer
Gam. 2 . Dungeon of Doom, 5.4
Gam. 2 . . . . . Enigma (Game)
Gam. 2 . . . . . Fortune, 1.01
Gam. 2 . . . . . Hearts, 1.6
Gam. 2 . . . . . HexPuzzle, 3
Gam. 2 . . . . . Jumble
Gam. 2 . . . . . MacConcentration
Gam. 2 . . . . . Mage's DAleks
Gam. 2 Super Dungeon of Doom Edit
Gam. 2 . . The Dungeon Winner
Gam. 2 . . . . . the NEW Daleks, 2
Gam. 2 . . . . . Triple Yahtzee

Games 3

Gam. 3 . . . . . Deep Ennui
Gam. 3 . . . . . Hustle
Gam. 3 . . . . . Juggler
Gam. 3 . . . . . Klondike, 3.6
Gam. 3 . . . . . Mac Missiles
Gam. 3 . . . . . MacBugs!
Gam. 3 . . . . . MacLanding, 0.6
Gam. 3 . . . . . MacLuff, 7
Gam. 3 . . . . . MacMatch
Gam. 3 . . . . . MacPente, 2
Gam. 3 . . . . . MacSeven
Gam. 3 . . . . . MaCube, 2.1
Gam. 3 . . . . . Missile, 2.3
Gam. 3 . . . . . Mystery Box
Gam. 3 . . . . . Office Attack
Gam. 3 . . . . . Othello
Gam. 3 . . . . . Safari
Gam. 3 . . . . . Social Climber
Gam. 3 . . . . . Solitaire

Games 4

Gam. 4 . . . . . MacYahtzee
Gam. 4 . . . . . MasterGuess
Gam. 4 . . . . . Orion, 1.4
Gam. 4 . . . . . Radical Castle, 2
Gam. 4 . . . . . Space Artillery
Gam. 4 . . . . . Space Attack
Gam. 4 Space Invaders, 85.09.23
Gam. 4 . . . . Spacebubbles, 0.96
Gam. 4 . . . . . Star Trek trivia quiz
Gam. 4 . . . . . StarTrek2.1 Info

Games 5

Gam. 5 . . . . . Crozzle, 0.8
Gam. 5 . . . . . Donkey Doo™
Gam. 5 . . . . . HangMan, 10
Gam. 5 . . . . . StuntCopter, 1.6
Gam. 5 . . . . . Think Ahead+, 1.3
Gam. 5 . This Ain't Othello, 0.01"
Gam. 5 . . . . . Vampire Castle, 7
Gam. 5 . . . . . Wall Game
Gam. 5 . . . . . WARGLE!

Games 6

Gam. 6 . . . . . 3D Checkers, 2
Gam. 6 . . . . . Canfield
Gam. 6 . . . . . MacWord Hunt, 2
Gam. 6 . . PhrazeCrazePlus, 1.01
Gam. 6 . . . . . PinBall, 1.1
Gam. 6 . . . . . Reversi, 2
Gam. 6 . . . . . ST game
Gam. 6 Webster's Revenge Demo
Gam. 6 . . . . . Wheel
Gam. 6 . . . . . Wizard's Fire, 1.2"

Games 7

Gam. 7 . . . . . Star Trek

Games 8

Gam. 8 . . . . . CairoShoot, 1.2
Gam. 8 . . . . . Go, 1.0B2
Gam. 8 . . . . . Golf (Card Game)
Gam. 8 . . . . . GunShy, 1.2.1
Gam. 8 . . . . . Scarab of RA, 1.2
Gam. 8 . . . . . ZeroGravity

Games 9

Gam. 9 . . . . . BlackJack
Gam. 9 . . . . . Centipede, 0.7
Gam. 9 . . . . . ChampioMac
Gam. 9 . . . . . Eidisi I
Gam. 9 . . . . . Iggy Iggopolis, 2
Gam. 9 . . . . . La Pierre Molle
Gam. 9 . . . . . Loto, 3.14
Gam. 9 . . . . . Pleiades
Gam. 9 . . . . . The Journey
Gam. 9 . . . . . Tic-Tac-Toe-Too™
Gam. 9 . . . . . Triangle
Gam. 9 . . . . . Tron Cycles

Games 10

Gam. 10 . . . . . Cap'n Magneto
Gam. 10 . . . . . Spear of Destiny

Games 11

Gam. 11 . . . . . 1000 Miles
Gam. 11 . Air Traffic Controller, 4
Gam. 11 . . . . . Bird Race
Gam. 11 . . . . . Darwin, 0.3
Gam. 11 . . . . . Lets Get Tanked!
Gam. 11 . . . . . Rogue
Gam. 11 . . . . . Social Climber
Gam. 11 . . . . . Zoony™

Games 12

Gam. 12 . . . . . Craps
Gam. 12 . Deja Vu (How to Win)
Gam. 12 . . . . Mac Hack, 1.0.3.1
Gam. 12 . . . . . MacTrek, 1.1
Gam. 12 . . The Master Guesser™
Gam. 12 . . . . . Utaan Attack ////
Gam. 12 . . . . . WolfPack
Gam. 12 . . . . . Yahtzee

Games 13

Gam. 13 . . . . . Ax Headroom
Gam. 13 . . . . . Blackjack, 3.1
Gam. 13 . . . . . CrossMaster, 0.2
Gam. 13 . . . . . Dragon™
Gam. 13 . . . . . Fize Zone, 1.0v
Gam. 13 . . . Karth of the Jungle
Gam. 13 . . Stock Market Crash™

Games 14

Gam. 14 . . . . . Ars Magna™
Gam. 14 . . . . . Automata
Gam. 14 . . . Beyond Dark Castle Maps
Gam. 14 . . Crimson Crown Hints
Gam. 14 . . . Dungeons of Doom Hints
Gam. 14 . . . . . Enchanter Map
Gam. 14 . . . . Hunting the Eland
Gam. 14 . . . . . MacChase, 1.45+
Gam. 14 . . . . . O.G.R.E.
Gam. 14 . . . ShadowGate Solved
Gam. 14 . . . . . Snigs
Gam. 14 . . . . . Sorcerer Map
Gam. 14 . . . . . SpellBreaker Map
Gam. 14 . . . The High Roller™, 2
Gam. 14 . . . . . Uninvited Hints
Gam. 14 . . . . . Uninvited Map
Gam. 14 . . . Uninvited Walkthru
Gam. 14 . . . . . Zork I Map
Gam. 14 . . . . . Zork II Map
Gam. 14 . . . . . Zork III Map

Games 15

Gam. 15 . . . . . Battle Mac
Gam. 15 . . . . . Brand Othello
Gam. 15 . . . . . Occult Pick▪It
Gam. 15 . . . . . Sitting Duck
Gam. 15 . . . . . The Fly
Gam. 15 . . . . . The Village, 1.04

Games 16

Gam. 16 . . Crystal Quest Sample
Gam. 16 . . . . . FootBall Picks
Gam. 16 . . . . . MacPuzzle
Gam. 16 . . . . . MazerLaze, 2
Gam. 16 . . . . . Teitnuag ∫∫a

Games 17

Gam. 17 . . . . . Bug Hunt
Gam. 17 . . WordFind 1.3ß, 1.3ß

Games 18

Gam. 18 . . . . . Bill's Casino
Gam. 18 . . . . . King Albert
Gam. 18 . . . . . MacFootball, 2
Gam. 18 . . . . . Mouse Craps
Gam. 18 . . . . . Pyramid !!!, 1.01
Gam. 18 . . . . . Royal Trick-Track
Gam. 18 . . . . . Will of Fortune

Games 19

Gam. 19 Dot-to-Dot Construction Set
Gam. 19 Face the Music, 1.0763
Gam. 19 . . . . . HeloMath
Gam. 19 Helping Children Learn to Add
Gam. 19 . . . Hot Air Balloon, 2.1
Gam. 19 . . . . Pattern Blocks, 2.1
Gam. 19 . . . . . Peg Puzzle Pak
Gam. 19 . . . . . Runaround
Gam. 19 . . . . . ThinkFast Demo

Games 20

Gam. 20 . . . Delphi Chronicles™
Gam. 20 . . . . . Mac_Pong II
Gam. 20 . . . . . Space Adventure
Gam. 20 . . . . . The Hotel Caper
Gam. 20 . . . Wizard's Warehouse

Games 21

Gam. 21 . . . . . P-W Adventure
Gam. 21 The Fool's Errand Demo

Games 22

Gam. 22 . . . . . Hacker II Map
Gam. 22 Master of Middle Earth, 1.1
Gam. 22 Pro Football Office Pool
Gam. 22 . . . . . Scrambler, 0.1
Gam. 22 . . . . . Solve, 1.1
Gam. 22 Star Fleet Battle Playing Aid, 4.1
Gam. 22 . . The Master's Familiar, 1.1b
Gam. 22 . . . . . Ultima II Booster
Gam. 22 . . . Word Search Game

Games 23

Gam. 23 . . . . . CavernQuest!
Gam. 23 . . . . . Pharaoh
Gam. 23 . . . . . Strange Hotel, 5

Games 24

Gam. 24 Ancient Art of War Files
Gam. 24 . . . . . Checkers, 1.3
Gam. 24 . . . . . Dragon, 2.1
Gam. 24 . . . . . Shuttle 88
Gam. 24 . . . Something's Hidden Here!

Games 25

Gam. 25 . . . . . Aimless, 0.8
Gam. 25 . . . . . Amps, 3.0(B2)
Gam. 25 . Assault on Point Alpha
Gam. 25 . . . . . Closure
Gam. 25 . . . . . Darts
Gam. 25 . . . . Death at Tarsus IV
Gam. 25 Dot to Dot Construction Set
Gam. 25 . . . . . Fifteens
Gam. 25 . . . . . Golf Mac Way
Gam. 25 . . . . . Mac Gunner
Gam. 25 . . . . . Megaroids ||, 1.5
Gam. 25 . . . . . OddsMaker
Gam. 25 . . . . . OutFlank
Gam. 25 . . . . . TankWar

Games 26

Gam. 26 Enchanted Pencils (PG), 0.99
Gam. 26 . Shanghai Demo, 1.0D
Gam. 26 . . The Haunted House, 1.4

Games 27

Gam. 27 . . . . . Rassling
Gam. 27 . . . Spacestation Pheta, 1.0.1
Gam. 27 . . . . . Stratego, 0.95
Gam. 27 . . . . World Class Demo
Gam. 27 . . . . . Wyrm

Games 28

Gam. 28 . . . . . Adventure!
Gam. 28 . . . . . AdventureMaker
Gam. 28 . . . . . Continuum
Gam. 28 . . . . . Game Finder™
Gam. 28 . . . . . Influence, 2.1

Games 29

Gam. 29 . . . . . Arkanoid Demo
Gam. 29 . . . . . Betwixt, 3.51
Gam. 29 . . . . . HangMan Plus
Gam. 29 . . . . Investigator No. 1
Gam. 29 . . . . . Mines, 1.01
Gam. 29 . . . . . OddsMaker, 1.1

Games 30

Gam. 30 . . . . . NetHack, 23
Gam. 30 . . . . . NetTrek, 2

Games 31

Gam. 31 . . . . . Find the Heart
Gam. 31 . . . Sands of Time, 1.09
Gam. 31 The puzzle piece search

Games 32-36

Gam. 32-36 . . . . . Discontinued

Games 37

Gam. 37 . . Haunted House, 1.5
Gam. 37 . Maze for the Questing Beast
Gam. 37 Quester-The Forbidden Lands

Games 38

Gam. 38 . . . . Bumper Ships, 1.1
Gam. 38 Crystal Quest Sample, 2
Gam. 38 . . . . . Fun in Space!, 2
Gam. 38 . . . . . Star 'Roids, 5.4.1"
Gam. 38 . . . . . Trek...Revisited

Games 39

Gam. 39 . . . . . Magic Rings
Gam. 39 . . . . . Minitorian
Gam. 39 . . . Plato's Cave, 2.4.1"

Games 40

Gam. 40 . . . . . 3rd Floor, 1.3
Gam. 40 . . . . . Chase'Em
Gam. 40 . . Empire Builder Demo
Gam. 40 . . . . . INTRUDER, 1.1

Games 41

Gam. 41 . . . . . MacBandit, 1.2
Gam. 41 . . . . . MasterMaze
Gam. 41 . . . . . The Phoenix

Games 42

Gam. 42 . . . Orbital Command™
Gam. 42 . . . . . PUZZ'L

Games 43

Gam. 43 All Time Baseball Teams
Gam. 43 . . . . . Lost in Las Vegas
Gam. 43 . . . . . Totally Safe!

Games 44

Gam. 44 . . . . . Arkanoid Demo
Gam. 44 . . . . . Bus'd Out, 0.25"
Gam. 44 . . . . . CONFLUX
Gam. 44 . . . . . Knight's Tour, 4"

Games 45

Gam. 45 . . . . . Swamp Witch

Games 46

Gam. 46 . . . . . Explorer Demo
Gam. 46 . . . . . SubWar!!!

Games 47

Gam. 47 . . . . . Camp Cantitoe
Gam. 47 . . . . . Mike's House

Games 48

Gam. 48 . . Castle of Sordoth, 1.1
Gam. 48 . . Leprechaun™ Demo, 2.6
Gam. 48 . . . . . Odyssey Demo

Games 49

Gam. 49 . . . . . Carbon Copy
Gam. 49 . . . . Sword of Siegfried

Games 50

Gam. 50 . . . . . Terrorist

Games 51

Gam. 51 . . . . . Discontinued

Games 52

Gam. 52 . . Mountain of Mayhem

Games 53

Gam. 53 . . . . . Karth II
Gam. 53 . . . . . Torpedos

Games 54

Gam. 54 . . . . . Chinese Puzzle
Gam. 54 . . . . Colony Edit, 1.0.1
Gam. 54Colossal Cave Adventure
Gam. 54 . . . . . MacCasino
Gam. 54 . . . Orbital Command™
Gam. 54 . . . . . Pai Gow, 0.9

Games 55

Gam. 55 . . . . . Artillery, 1.5
Gam. 55 . . . . . Consternation
Gam. 55 . . . . . Intruder
Gam. 55 . . . . Might & Magic File Format
Gam. 55 . . Might & Magic Player Editor, 1.1
Gam. 55 . . . . . Tank Commander
Gam. 55 Wargle! Demo, Wargle!

Games 56

Gam. 56 . . . . . Alterations
Gam. 56 Colony Map Comments
Gam. 56 . . . . . Haunted Mouse
Gam. 56 . . . . . NIM
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Gam. 62 . . . . . Guess
Gam. 62 . . . . . Hanio
Gam. 62 . . . . . LawnZapper
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Graph 2 . . . . . Insane
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Graph 8 . . Picture Colorizer, 2.1
Graph 8 . . . . . PS Printer
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Graph 8 . . . . . ZoomShapes

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Paris 1 . . . . Color Scrapbook File
Paris 1 . . . . . ColorBoxes_by_Neal_Trautman
Paris 1 . . . . . colorlBounce
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Paris 1 . . . . . Rainbow
Paris 1 . . . . . SD->AlertSound
Paris 1 . . . . . Sound->Beep
Paris 1 . . . . . Sound->Snd
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Paris 1 . . . . . Spirograph Mac II
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Paris 2 . . . . . Dave's Window
Paris 2 . . . . . Dragnet
Paris 2 . . . . . Elephant
Paris 2 . . . . . Fred Flintstone
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Paris 2 . . . . . FTroop2
Paris 2 . . . . . Fung Riff
Paris 2 . . . . . Guitar Beep
Paris 2 . . . . . Hi
Paris 2 . . . . . Illogical
Paris 2 . . . . . Kirk Here
Paris 2 . . . . . Lamb Beep
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Paris 2 . . . . . Sea Lion Beep
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Paris 3 . . . . . Ball StartUp
Paris 3 . . . . . Bill StartUp
Paris 3 . . . . . CGeisha StartUp
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Paris 3 . . . . . Cube
Paris 3 . . . . . Juggler
Paris 3 . . . . . Lizards.pict
Paris 3 . . . . . Marat.pict
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Paris 3 . . . . . Spock
Paris 3 . . StartupScreen.EINSTEIN
Paris 3 . . . . . StartupScreen.Kirk
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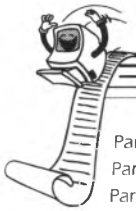
Paris 4 . . . . . Anulka
Paris 4 . . . . . Carmen Berg
Paris 4 . . . . . Carol
Paris 4 . . . . . Danielle
Paris 4 . . . . . Debra Jo Fondren



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Paris 5 . . . . . Death Star
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Paris 5 . . . . . Emerald City
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Paris 5 . . . . . Fox Puppy
Paris 5 . . . . . Garfield
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Paris 5 . . . . . Guru
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Paris 5 . . . . . Time Crystal
Paris 5 . . . . . Tron Tank
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Paris 6 . . . . . Challenger
Paris 6 . . . . . Duran
Paris 6 . . . . . Earth
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Paris 6 . . . . . Kitty
Paris 6 . . . . . Kristen
Paris 6 . . . . . Lunar Rover
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Paris 7 . . . . . Egyptian Queen...
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Paris 9 . . . . . Kiss
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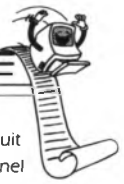

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Paris 27 . . . . . Misc. Color Icons
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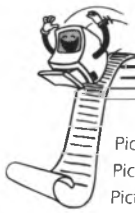

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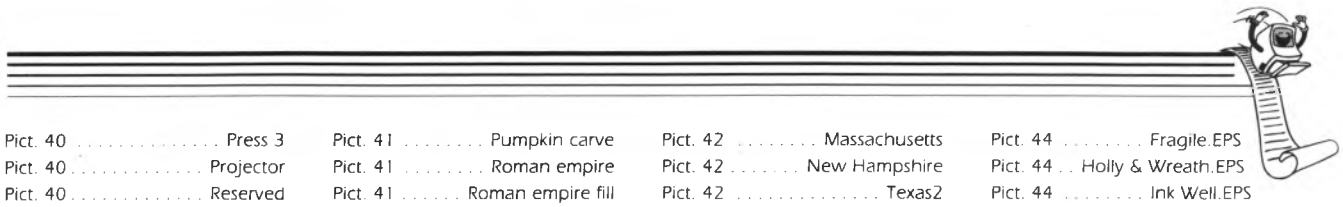

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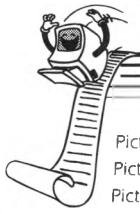

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Snds 3 . . . . . Screams
Snds 3 . . . . . Thunder
Snds 3 . . . . . Twilight Zone

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Snds 4 . . . . . CheapBeep, 1.0a
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Snds 4 . . . . . Floyd Bells
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Snds 4 . . . . . SoundMaster, 1.2
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Snds 4 . . . . . Woob Woob
Snds 4 . . . . . Yabba Dabba Doo

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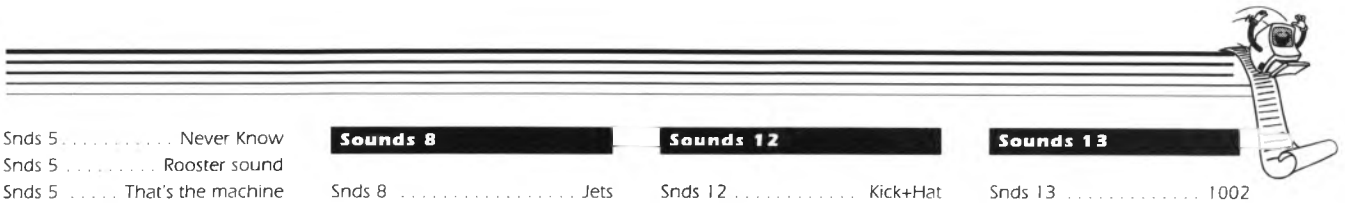
Snds 5 . . . . . Baby sound
Snds 5 . . . . . Back Off!!
Snds 5 . . . . . Horse Race
Snds 5 . . . . . Knock



Snds 5 . . . . . Never Know
Snds 5 . . . . . Rooster sound
Snds 5 . . . . . That's the machine
Snds 5 . . . . . Wecome

Sounds 6

Snds 6 . . . . . Ayaaaah!
Snds 6 . . . . . Bad disk
Snds 6 . . . . . Beep
Snds 6 . . . . . Beep #19
Snds 6 . . . . . Beep #20
Snds 6 . . . . . Boo
Snds 6 . . . . . Boom! Ooooh...
Snds 6 . . . . . ByebyeINIT
Snds 6 . . . . . Chimes
Snds 6 . . . . . Chimes#2
Snds 6 . . . . . Computers
Snds 6 . . . . . Danger, Danger
Snds 6 . . . . . Door
Snds 6 . . . . . Drums
Snds 6 . . . . . Drums
Snds 6 . . . . . Eject disk
Snds 6 . . . . . Extra Special
Snds 6 . . . . . Game over, Man
Snds 6 . . . . . Harp-Arppegio
Snds 6 . . . . . Harp-Arppegio
Snds 6 . . . . . Hey
Snds 6 . . . . . Hey#2
Snds 6 . . . . . Hey#3
Snds 6 . . . . . Horn
Snds 6 . . . . . Horn#2
Snds 6 . . . . . Insert disk
Snds 6 . . . . . Monkey
Snds 6 . . . . . No, Will Robinson!
Snds 6 . . . . . Oh Bother
Snds 6 . . . . . Organ Minor Chord
Snds 6 . . . . . Organ Minor Chord
Snds 6 . . . . . phoneRing
Snds 6 . . . . . Pipe Organ
Snds 6 . . . . . Pipe Organ
Snds 6 . . . . . Shot
Snds 6 . . . . . Shutdown
Snds 6 . . . . . Steel-Drum
Snds 6 . . . . . Steel-Drum
Snds 6 . . . . . Strings
Snds 6 . . . . . Strings#2
Snds 6 . . . . . Vulcan Mind
Snds 6 . . . . . Wail-Guitar
Snds 6 . . . . . Wail-Guitar
Snds 6 . . . . . Was It . . ?
Snds 6 . . . . . Wow

Sounds 7

Snds 7 . . . . . Buse
Snds 7 . . . Chaocard à tête jaune
Snds 7 . . . . . Choucas
Snds 7 . . . . . Grand Corbeau
Snds 7 . . . . . MartinetAlpin
Snds 7 . . . . . Tétras Lyre

Sounds 8

Snds 8 . . . . . Jets
Snds 8 . . . . . Ship Horns
Snds 8 . . . . . Taxi Horns
Snds 8 . . . . . Tic Tac
Snds 8 . . . . . Vacuum Cleaner
Snds 8 . . . Wild Wild West(11hz)

Sounds 9

Snds 9 . . . . . Any Body say Bang
Snds 9 . . Feed Me All Night Long
Snds 9 . . . . . I Know his Name !
Snds 9 . . . . . It's Easy for you...
Snds 9 . . . . . Ranyanaaannnee
Snds 9 . . . . . Sound of Music
Snds 9 . . . . . You Know What ...

Sounds 10

Snds 10 . . . . . Cuckoo Clock
Snds 10 . . . . . Ding
Snds 10 . . . . . Ding (old version)
Snds 10 . . . . . Flash 1
Snds 10 . . . . . Han han han
Snds 10 . . . . . Looney Toon
Snds 10 . . . . . Mah Na Mah Na
Snds 10 . . . . . Mood Music
Snds 10 slice of Mah Na Mah Na
Snds 10 . . . . . Tu tu tu

Sounds 11

Snds 11 . . . . . A Little Button
Snds 11 . . . . . Ah.Sound
Snds 11 . . . . . Bad disk
Snds 11 . . Bad Disk-Soundmaster
Snds 11 . . . . . Bark.Sound
Snds 11 . . . . . Be back.Sound
Snds 11 . . . . . Beep sound
Snds 11 . . . . Beep-Soundmaster
Snds 11 . . . . . Disk eject
Snds 11 . . . . . Disk Ejection-Soundmaster
Snds 11 . . . . . Disk insert
Snds 11 Disk Insert-Soundmaster
Snds 11 . . . . . Game over.Sound
Snds 11 Here's looking at you, kid
Snds 11 . . . . . Key click
Snds 11 . . . . . Number 9
Snds 11 . . . . . Oops.Sound
Snds 11 . . . . . PWscream.Sound
Snds 11 . . . Restart-Soundmaster
Snds 11 . . . . . ShutDown sound
Snds 11 Shutdown-Soundmaster
Snds 11 . . . . . Startup sound
Snds 11 . . . Startup-Soundmaster
Snds 11 . . . . . sysbeep.snth
Snds 11 . . . . Trying to think.Snd
Snds 11 . . . . . TypeKey.Sound
Snds 11 . . . . . TypeReturn.Sound
Snds 11 . . . . . TypeSpace.Sound

Sounds 12

Snds 12 . . . . . Kick+Hat
Snds 12 . . . . . Ac Guitar Hi
Snds 12 . . . . . Ac Guitar Lo
Snds 12 . . . . . Ac Guitar Maj
Snds 12 . . . . . Ac Guitar Min
Snds 12 . . . . . Are you sure...
Snds 12 . . . . . Bass Guitar Long
Snds 12 . . . . . Bass Hi
Snds 12 . . . . . Bass Lo
Snds 12 . . . . . Crash Cymbal
Snds 12 . . . . . E Bass
Snds 12 . . . . . Electric Piano 13
Snds 12 . . . . . Electric Piano Lo
Snds 12 . . . . Electric Piano Min3
Snds 12 . . . . . Fiddle Hi
Snds 12 . . . . . Fiddle Short(D4)
Snds 12 . . . . . Fiddle Short(G2)
Snds 12 . . . . . Fiddle Short(G3)
Snds 12 . . . . . Fiddle Short(G4)
Snds 12 . . . . . Flute Hi
Snds 12 . . . . . Flute Lo
Snds 12 . . . . . Flute Mid
Snds 12 . . . . . Fuzz Bass
Snds 12 . . . . . Greensleeves
Snds 12 . . . . . Guitar
Snds 12 . . . . . Guitar 7
Snds 12 . . . . . Guitar(D Maj.)
Snds 12 . . . . . Guitar(E min.)
Snds 12 . . . . . Guitar(G Maj.)
Snds 12 . . . . . HiHatClosed
Snds 12 . . . . . HiHatOpen
Snds 12 . . . . . Jaw Harp
Snds 12 . . . . . Jazz Snare
Snds 12 . . . . . Liverpool
Snds 12 . . . . . MChop (Lo 5th)
Snds 12 . . . . . MDouble bend
Snds 12 . . . . . Mguitar Bent 3rd
Snds 12 . . . . . Mguitar G3
Snds 12 . . . . . Mguitar Hi 4th
Snds 12 . . . . . Mguitar Hi Sustain
Snds 12 . . . . . MHi-hat
Snds 12 . . . . . MKick+Hat
Snds 12 . . . . . New Snare
Snds 12 . . . . . Orbit
Snds 12 . . . . . Rock Snare
Snds 12 . . . . . Rooster
Snds 12 . . . . . Slide(Pick)
Snds 12 . . . . . Snare Normal
Snds 12 . . . . . Solo Guitar
Snds 12 . . . . . Steel Short
Snds 12 . . . . . Synth Bass
Snds 12 . . . . . Synth Shot
Snds 12 . . . . . Synth Spring
Snds 12 . . . . . Tenor Hi
Snds 12 . . . . . Tombone Hi
Snds 12 . . . . . Tombone Lo
Snds 12 . . . . . Tombone Mid
Snds 12 . . . . . Tombone Mid 2
Snds 12 . . . . . Turkey
Snds 12 . . . . . Whirl
Snds 12 . . . . . Whoosh

Sounds 13

Snds 13 1002
Snds 13 . . . . . Bad disk
Snds 13 . . . . . Beep
Snds 13 . . . . . Bells of Eternity
Snds 13 . . . . . Eject
Snds 13 . . . . . Hubert
Snds 13 . . . . . IgniSound, 1.2
Snds 13 . . . . . Insert disk
Snds 13 . . . . . Key click
Snds 13 . . . . . Kick
Snds 13 . . . . . LookDone.snd
Snds 13 . . . . . MacTalker
Snds 13 . . . MacWelcome™, 1.4
Snds 13 . . . . . MyPretty
Snds 13 . . . . . Phaser
Snds 13 . . . . . Pict. on a Invalid
Snds 13 . . . . . Reboot
Snds 13 . . . . . Request
Snds 13 . . . . . RideCymbal
Snds 13 . . . . . Rocket Roll
Snds 13 . . . . . Shot
Snds 13 . . . . . Troops
Snds 13 . . . . . VulcanBell
Snds 13 . . . . . Welcome

Sounds 14

Snds 14 . . . . . bad disk
Snds 14 . . . . . MacCD Demo
Snds 14 . . . . . Zippy

Sounds 15

Snds 15 . . . . . 10,000 Marbles
Snds 15 . . . . . Chime, 2
Snds 15 . . . . . Chime Sound
Snds 15 . . . Doctor not Escalator
Snds 15 Grandfather clock chime sound
Snds 15 . . . . . He's Dead, Jim
Snds 15 . . . . . Kirk to Enterprise
Snds 15 . Like, wow, man... - 11k
Snds 15 . . . . Mantel clock chime sound
Snds 15 . . . . . Not an Engineer
Snds 15 . . . . Old Country Doctor
Snds 15 . . . . . Please Proceed
Snds 15 . . . . . The Final Frontier
Snds 15 . . . There Goes Paradise
Snds 15 . . . . Tower clock chime sound
Snds 15 . . . . . You're Wrong

Sounds 16

Snds 16 . . . . . Dr. Who Theme
Snds 16 . . . . . Energy Field
Snds 16 . Full Emergency Circuits
Snds 16 . . . . . MacII Beep
Snds 16 . . . . . MGun
Snds 16 Only Knowledge Erased
Snds 16 Only Knowledge Erased

Snds 16 . Sound Mover, 1.2a
Snds 16 . . . Sound->snd, 1.2
Snds 16 . . . The Final Frontier

Sounds 17

Snds 17 . . . . . 20 Seconds
Snds 17 . . . . . Are you sure...
Snds 17 . . . . . Bad Disk
Snds 17 . . . . . Beep
Snds 17 . . . . . Beep1
Snds 17 . . . . . Beep2
Snds 17 . . . . . Bells of Eternity
Snds 17 . . . . . Beware!
Snds 17 . . . . . Blistered Fingers
Snds 17 . . . . . Bomb
Snds 17 . . . Doctor not Escalator
Snds 17 . . . . . DragnetBeep
Snds 17 . . . . . Eject
Snds 17 . . . . . Gas Music
Snds 17 . . . . . Hallucinating
Snds 17 . . . . . Insert Disk
Snds 17 . . . . . Key click
Snds 17 . . . . . Please Proceed
Snds 17 . . . . . Reboot
Snds 17 . . . . . Request
Snds 17 . . . . . The real story
Snds 17 . . . There Goes Paradise
Snds 17 . . . . . Turn Me On...
Snds 17 . . . . . Welcome
Snds 17 . . . . . Zzt.snd

Sounds 18

Snds 18 . . . . Aliens have landed
Snds 18 . . . . Aliens have landed
Snds 18 . . . . . Energy Field
Snds 18 . . . . . Energy Field
Snds 18 . . . . . Error, Error
Snds 18 . . . . . Error, Error
Snds 18 . Everything you know...
Snds 18 . Everything you know...
Snds 18 . . . . . Expresso...
Snds 18 . . . . . Expresso...
Snds 18 . . . . . Hello Seekers...
Snds 18 . . . . . Hello Seekers...
Snds 18 . . . . . MacTalker
Snds 18 . . . . . Play
Snds 18 . . . . . Play Sound
Snds 18 . . . . . Sounder
Snds 18 . . . . . Sounder
Snds 18 . . . . . TalkingMac

Sounds 19

Snds 19 . . . . . AM/FM Beep
Snds 19 . . . . . Arcade Beep
Snds 19 . Bassoon & Bone Beep
Snds 19 . . . . Casio Beep(try me)
Snds 19 . . . Comedy Horn Beep
Snds 19 . . . . . Double Sine Beep
Snds 19 . . . . . FM Beep
Snds 19 . . . . Kind Warning Beep
Snds 19 . . . . . Metal Beep
Snds 19 . . . . . Multi-Beep
Snds 19 . . . . . No SEX!
Snds 19 . . . . . Pure Saw Beep
Snds 19 . . . . . Robotic Beep
Snds 19 . . . . . SoundMaster1.4
Snds 19 . . . . . Space Code Beep
Snds 19 . . . . . Space Cookies 11k
Snds 19 . . . . . Strange Things...
Snds 19 . . . . . Stranger/Breakfast cereal/Zapho

Sounds 20

Snds 20 . . . . . Better Boing
Snds 20 . . . Drop of Water Beep
Snds 20 . . . . . GhostBuster Rap
Snds 20 . Holy Zarquon's Singing Fish!
Snds 20 . . . . . Inquisition
Snds 20 . . . . . Jazz Piano Beep
Snds 20 . . . . Laughing Warning
Snds 20 . . . . . SoundMaster1.4
Snds 20 . . . . . Spring Beep
Snds 20 . . . . . Square Mod Beep
Snds 20 . . . . . Tennis!?
Snds 20 . . . . . To the Batmobile
Snds 20 . . . . . Tympani Beep

Sounds 21

Snds 21 . Bomb intended for me!
Snds 21 . Bomb! Expecting One?
Snds 21 Hi There/Bundle of kicks/ Eddie
Snds 21 . . . . . Nuts!
Snds 21 . . . . . SoundMaster1.4
Snds 21 . . . . . Special Delivery
Snds 21 . . . . Special Delivery - a bomb!

Sounds 22

Snds 22 . . . . . Discontinued

Sounds 23

Snds 23 . . . . . Chime, 3.3
Snds 23 . . . . . Dawn
Snds 23 . . . . . Finder Sounds
Snds 23 . . . . . !Beep2
Snds 23 . . . . . SoundMover
Snds 23 . . . . StartUp Sound INIT
Snds 23 . . . . . Sound Control
Snds 23 . . . . Sound Input Device
Snds 23 . . . . . SoundMaster, 1.4
Snds 23 . . . . . The Grouch, 2.0

Sounds 24

Snds 24 . . . . . SuperPlay, v. 4.0
Snds 24 . . . . . Bumpy Night
Snds 24 . . . Bring out your dead
Snds 24 . . . . . Can't touch this
Snds 24 . . Come out to the coast
Snds 24 . . . . . Eat My Shorts
Snds 24 . . . . . FMV#1
Snds 24 . . . . . Fanfare #1
Snds 24 . . . . . Fanfare #2
Snds 24 . . . . . Good Time?
Snds 24 . . . . . Hello, Hello, Hello

Sounds 25

Snds 25 . . . Bring out your dead
Snds 25 . . . . . Bumpy night
Snds 25 . . Come out to the coast
Snds 25 . . . . . Fanfare #1
Snds 25 . . . . . Fanfare #2
Snds 25 I am livin' on Channel Z 11k
Snds 25 . . . . . Ordering Pizza?
Snds 25 Seen Temptation Comin'
Snds 25 . . . . . SuperPlay, v. 4.0
Snds 25 . . . . Take the bones out

Telecommunication A1.0

Tele A1 . . . . . PackIt III, v. 1.3
Tele A1 . . StuffIt Classic™, v. 1.6
Tele A1 UnStuffIt Deluxe™, v. 1.0

Telecommunication A2.0

Tele A2 . . . . Compactor, v. 1.21
Tele A2 . . . Disk Doubler, v. 3.01

Telecommunication 1

Tele 1 . . . . . Binhex, 5
Tele 1 . . . . . FModem, 0.95
Tele 1 . . . MacQueue Dialer, 1.6
Tele 1 . . . . . PackIt III, 1.3
Tele 1 . . . . . Quote Init, 2
Tele 1 . . . . . RRkeybuf
Tele 1 . . . . . Set Clock, 2
Tele 1 . . . . . StuffIt, 1.5.1
Tele 1 . . . . . UnStuffIt, 1.5.1

Telecommunication 2

Tele 2 . . . . . BackDown, Delta+2
Tele 2 . . . . . BBS List
Tele 2 . . . . . DeskZap, 1.31
Tele 2 . . . . . FreeTerm, 3.0b3
Tele 2 . . . . . Grafterm, 2.4
Tele 2 . . . . . MacKermit, 0.9(40)
Tele 2 . . . . . MakTerm, 3.8
Tele 2 . . . . . MCS, 1.0c
Tele 2 . . Pretty Good Terminal™, 2.1
Tele 2 . . . . . SquirmTerm
Tele 2 . . . . . TermWorks, 1.3

Telecommunication 3

Tele 3 . . . . . WWIV, 3.0

Telecommunication 4

Tele 4 . . . . . About MacBinary...
Tele 4 . . . . . Beta Board
Tele 4 . . . . . MacBinary standard
Tele 4 . . . . . macGEnie, 0.04
Tele 4 . . . . . MicroEMACS, 3.8M
Tele 4 . . . . . Packit Protocol
Tele 4 . . . . . PC Pursuit
Tele 4 . . . . . Quick Link™, 3.0.0
Tele 4 . . QuickB Download, 1.15
Tele 4 . . . . . Xmodem protocol

Telecommunication 5

Tele 5 . . . . . MacBinary, 1.0.1
Tele 5 . . . . . MacPage, 1.3.1
Tele 5 . . . MicroPhone II Settings
Tele 5 . . . . . PCP generic script
Tele 5 . . . . . TeleFinder Demo
Tele 5 . . . . . TermTalk
Tele 5 . . . . . ZTerm, 0.8

Telecommunication 6

Tele 6 . . . . . 32QD Active
Tele 6 AppleLink 5.0 ICN# + cicn
Tele 6 . . . . . ArcSet
Tele 6 . . . . . IconUX
Tele 6 . . . . . MacArc
Tele 6 . . . . . T2500 Help, 1.02
Tele 6 . . . . . VT-DAs
Tele 6 . . . . . XCOMM
Tele 6 . . . . . ZipPop

Telecommunication 7

Tele 7 . . . . . Hermes BBS
Tele 7 . . . . . NinjaTerm

Telecommunication 8

Tele 8 . MicroPhone II 3.0 Script: CIS Mail
Tele 8 MicroPhone II 3.0 Script: 2 Dialog Scripts

Telecommunication 9

Tele 9 . . . . . Disk Doubler, 2.04 Expander
Tele 9 . . . . . Mac BBS
Tele 9 . . Mac to MacBinary Apple File Exchange
Tele 9 . . . . . MacPage, 1.4.2
Tele 9 . . . . . Termulator

Telecommunication 10

Tele 10 . . . . . ?????

Telecommunication 11

Tele 11 . . . . . MacPoint

Tele 11 . . . . . Minitel/Mac

Telecommunication 12

Tele 12 . . . . . Charm
Tele 12 . . . . . Jaberwocky
Tele 12 . . . . . MacLayers

Telecommunication 13

Tele 13 . . . . . Batch Binary
Tele 13 . . . . . Minitel/Mac
Tele 13 . . . . . ZTerm, v. 0.85

Text Files 1

Text 1 . . . . . Add/Strip, 2.12
Text 1 . . . . . Cleanup
Text 1 . . . . . Converter, 1.2
Text 1 . . . . . DL>Delimiter, 1.07
Text 1 . . . . . EndLine, 2
Text 1 . . . . . File Conversion
Text 1 . . . . . File Converter
Text 1 . . . . . File Diddler
Text 1 . . . . . GoldVarb, 1.5
Text 1 . . . . . Idealiner Jr, 2.2
Text 1 . . . . . ink, 2
Text 1 . . . . . Sort , 1.11b
Text 1 Super-Duper File Stripper, 2.1
Text 1 . . . . Tab Expander , 1.11a
Text 1 . . . . . TabUtil
Text 1 . . . . . TextDiff, 0.9

Text Files 2

Text 2 . . . . . Display a file
Text 2 . . . . . Evolutions, 1.01
Text 2 . . . . . File, 1.Utah
Text 2 . . . . . File Splitter
Text 2 . . . . . Macify, 2.5
Text 2 . . . . . MDS EDIT, 2.1
Text 2 . . . . . MEdit, 1.5
Text 2 . . . . . PrettyPrint, 2
Text 2 . . . . . Quick Reader
Text 2 . . . . . TEXT Ranger
Text 2 . . . . . Val-Speak
Text 2 . . . . . WordCount 3.01
Text 2 . . . . . yapu, 3.2

Text Files 3

Text 3 BMUG Fall '84 Newsletter
Text 3 . . . . . DocDoctor Demo
Text 3 . . Document Mangle, 1.0 Beta
Text 3 . . . . . FaceLift
Text 3 . . . . . File Cleaner
Text 3 . . . . . File Tricks, 1.1b
Text 3 . . . . . Fix It All
Text 3 . . . . . Fix MacWrite
Text 3 . . . . . Index, 4.5
Text 3 . . . . . MacWrite Recover
Text 3 . . . . . MW -> Text
Text 3 . . . . . ReadMacWrite, 85.12.20.spg
Text 3 . . . . . ReadWrite©, 1.2
Text 3 . . . . . WordCount, 3

Utilities 1

Util 1 . . . . . ApplicationMenu
Util 1 . . . . . AutoBlack, 1.5
Util 1 . . . . . AutoIdle
Util 1 . . . . . BigZoomIdle
Util 1 . . . . . Complete Delete
Util 1 . . . . . Contiguous
Util 1 . . . . . Disk List/DR
Util 1 . . . . . Disk Test
Util 1 . . . . . DiskDup+, 1.2
Util 1 . . . . . Eraser, 1.0B1
Util 1 . . . . . Hitchhiker System
Util 1 . . . . . Icon Exchanger, 6.1
Util 1 . . . . . Icon Extractor, 1.1
Util 1 . . . . . IconMaker
Util 1 . . . . . IconManager
Util 1 . . . . . ICONstructor
Util 1 . . . . . Jaws Icon
Util 1 . . . . . Layout, 1.7
Util 1 . . . . . MacClone, 2
Util 1 . . . . . Panic Button
Util 1 . . . . . ResMENU
Util 1 . . . . . SicnEdit
Util 1 . . . . . Sleep A
Util 1 . . . . . Sleep B
Util 1 . . . . . Stars, 1.8
Util 1 . . . . . Super Copy, 1.1
Util 1 . . . . . WayStation, 2.6

Utilities 2

Util 2 . . . . . Biorhythm II, 4.1
Util 2 . . . . . Cat•Mac™, 1.2.6
Util 2 . . . . . Creation Date Fixer
Util 2 . . . . . Curious Cat, 1.1
Util 2 . . . . . Disk Librarian, 1.82a
Util 2 . . . . . DiskTimerII
Util 2 . . . . . Fast Formatter™, 2.2
Util 2 . . . . . Formatter Deluxe
Util 2 . . . . . Hours of Daylight
Util 2 . . . . . MacProtect
Util 2 . . . . . MacSnoop™, 1.4.4
Util 2 . . . . . Menu Edit
Util 2 . . . . . Pickproof, 1.2
Util 2 . . . . . Qwik Dir, 2
Util 2 . . . . . RamStart, 1.4
Util 2 . . . . . REMOVE*JCLOCK
Util 2 . . . . . Scandisk
Util 2 . . . . . Smallview, 1.2
Util 2 . . . . . Tiny Finder
Util 2 . . . . . Verify, 1.1
Util 2 . . . . . Weight&Balance
Util 2 . . Window Remover, 1.15

Utilities 3

Util 3Beginner's Guide to 4.1/5.5
Util 3 . . . . . Envelope
Util 3 . . . . . Flipper
Util 3 . . . . . FontFkeyDaInitPictSnd Sampler, ∞+1
Util 3 . . . . . HD Mini-Icon, 2
Util 3 . . . . . Icon Extractor, 1.1
Util 3 . . . . . Index Maker, 2
Util 3 . . . . . MacPS Demo
Util 3 . . . . MicroFilm Reader, 1.4
Util 3 . . . . . Servant, 0.953
Util 3 . . . . . SuperFinder, 4.1
Util 3 . . . . . The Hitcher
Util 3 . . . . . Typing Helper
Util 3 . . . . . Version Sleuth

Utilities 4

Util 4 . . . . . A-Talk
Util 4 . . . . . Apple-Jam
Util 4 . . . . . ClockSynch
Util 4 . . . . . Disk Fixer
Util 4 . . . . . Fedit tricks
Util 4 . . . . . File Fixer, 0.5
Util 4 . . . . . Fix It All
Util 4 . . . . . Fix MacWrite
Util 4 . . . . . LaserLister, 4.1E
Util 4 . . . . . MacRepair
Util 4 . . . . . Mount any Hard Disk
Util 4 . . . . . MW -> Text
Util 4 . . . . . NetCheck, 2
Util 4 . . . . . NodeCheck, 3.0B1
Util 4 . . . . . Peek, 1.2
Util 4 . . . . . Poke, 2
Util 4 . . . . . RamDisk+, 2.08
Util 4 . . ReadMacWrite, 85.12.20
Util 4 . . . . . Rescue, 0.99
Util 4 . . . . . Sad Mac Codes
Util 4 . . . . . The Namer, 2.1
Util 4 . . The Tape Labeler, 1.0b1

Utilities 5

Util 5 . . . . . AutoDelete
Util 5 . . . . . CatMaker
Util 5 . . . . . HD Runner, 1.1
Util 5 . . . . . MacAuto!, 0.85
Util 5 . . . . . MacDump, 2.1
Util 5 . . . . . MessageMaker
Util 5 . . . . . My Back Up
Util 5 . . . . . Peeker
Util 5 . . . . . Pict-All, 1.0a
Util 5 . . . . . SCSI Evaluator
Util 5 . . . . . SCSI Test
Util 5 . . . . . Set BackPat
Util 5 . . . . . ShowSizes
Util 5 . . . . . Speed Check, 1.5
Util 5 . . . . . Xerisk, 0.95

Utilities 6

Util 6 . . . . . Big Menu™
Util 6 . . . . . ChooseCDEV™
Util 6 . . . . . Earth Idle
Util 6 . . . . . Elapse, 2
Util 6 Electric Dvorak Installer
Util 6 . . . . . FinderSubstitute
Util 6 . . . . . FolderShare™
Util 6 . . . . . Front&Center, 0.92
Util 6 . . . . . GLA, 1.5
Util 6 . . . . . M/F Rating, 1.1
Util 6 . . . . . Memdoggie
Util 6 . . . . . MultiLaunch
Util 6 . . . . . MultiSet
Util 6 . . . . . Oasis, 2.02
Util 6 . . . . . QuicKeys™ Demo
Util 6 . . . . . ResTools, 2.01
Util 6 . . . . ScreenDump Patches
Util 6 . . . . . Scribe™
Util 6 . . . . . SCSI Parker, 1.1
Util 6 . . . . . SetNode
Util 6 . . . . . SwapParamRAM
Util 6 . . . . . Tattle Tale, 1.0.1
Util 6 . . . . . Waiting
Util 6 . . . . . Who's Who
Util 6 . . . . . zapPRAM
Util 6 . . . . . Zoomation!, 1.5

Utilities 7

Util 7 . . . . . AATrix Revolver
Util 7 . . . . . Apple Tech Tidbits
Util 7 . . . . Comment Editor, 1.01
Util 7 . . . . . F1F4, 1.3
Util 7 . . Flash Formatter Installer
Util 7 . . . . . Label Manager
Util 7 . . . . . LaserLAB
Util 7 . . . . . Mass Formatter
Util 7 . . . . . ResPeek Demo, 2.03
Util 7 . . . . . SSSwitcher©
Util 7 . . . TN176 Installing Simms

Utilities 8 (Virus Disk)

Util 8 . . . . . AntiPan, 1.1
Util 8 . . . . . AntiViral
Util 8 . . . . . AntiVirus, 1.1
Util 8 . . . . . AntiVirus 2
Util 8 . . . . . Disinfectant, 1.1
Util 8 . . . . . Ferret, 1.1
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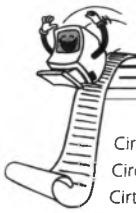

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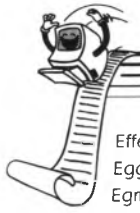

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Bus. 1h . . . . . Orderform
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Aids Clock . . . . . Edu. 15h
Airport 1.0 . . . . . Game 21h
Alarms . . . . . Bus. 3h
Almanac 1.5 . . . . . Edu. 48h
Alphabet . . . . . Edu. 40h
Alphabetize References . . . . . Edu. 42h
Alphabetize References . . . . . Edu. 43h
Amino Acids . . . . . Edu. 48h
American Profile . . . . Grph 12h
Animal 1.7 . . . . . Edu. 41h
Animal 1.7 . . . . . Edu. 44h
Animal 1.7 Empty . . . . Edu. 43h
Animal Graphc Empty . . . . . Edu. 44h
Animal Graphic Empty . . . . . Edu. 40h
Animal Kingdom . . . . . Edu. 3h
Animal Stack . . . . . Edu. 45h
Animals . . . . . Gam 5h

Animals & Sound . . Edu. 25h
AnimalYear . . . . . Edu. 2h
Animation Help v. 1.03 . . . . . Grph 11h
Animation Stack . . . . . Gam 3h
Answer 2 XFCN . . . . . Prog 18h
Application Stack . . . . . Util 7h
AppMenu 2.0 . . . . . Prog 3h
Art Game 1.9 . . . . . Gam 20h
Ask 'Mr. E' . . . . . Gam 14h
Astro Almanac . . . . . Edu. 11h
Astro Stack . . . . . Edu. 4h
Astro Stack . . . . . Edu. 6h
Astrology . . . . . Edu. 11h
AstroStack . . . . . Edu. 21h
At The Zoo . . . . . Gam 13h
Atlas 1.1 . . . . . Edu. 18h
Auto Floppy Log 3.01 . Util 1.5h
AutoCat . . . . . Util 12h
AutoHilite Button . . . . . Util 16h
AutoScripter . . . . . Util 1.5h
Away From Home . . . . . Bus. 1h

B...

Balloon Stack Demo . . Gam 27h
Bar Button . . . . . Util 11h
Base-Ball . . . . . Gam 19h
Baseball . . . . . Gam 17h
Battle of Britain . . . . . Gam 9h
Believe It Or Else . . . . . Edu. 61h
Benson . . . . . Edu. 35h
Better Sound Stack . . . . Snds 7h
BFDC . . . . . Edu. 23h
Biblio-Stack . . . . . Edu. 41h
Bibliography XREF . . . . Edu. 19h
Bibliography XREF . . . . Edu. 6h
Bill Sez . . . . . Mics. 3h
Biorhythms . . . . . Edu. 15h
Bird Anatomy v1.2d . . Edu. 36h
Birthday . . . . . Edu. 15h
Birthday . . . . . Edu. 18h
Blank Checkbook . . . . . Bus. 10h
Bloom County . . . . . Grph 1h
BMUG DeskTop Music . . . . . Grph 3h
BMUG SIMM Stack™ . . . Util 1.5h
Bob . . . . . Misc. 2h
Bogie . . . . . Util 4h
Book of Changes . . . . . Edu. 22h
Books 1.0 . . . . . Util 5h
Bowling Scores . . . . . Gam 8h
BrainStack . . . . . Edu. 15h
BreakSPort . . . . . Prog 1h
Breast file . . . . . Edu. 26h
Briefcase Stack . . . . . Edu. 56h
Bring in the Expert . . . . . Util 8h
Bugs Funnies . . . . . Gam 3h
Bureaucracy Tracker 2.0 . . . . . Bus. 10h
Business Class Demo . . . Bus. 2h
Business Phone 1.03s . . Bus. 4h
Button regions . . . . . Prog 7h
ButtonMaker . . . . . Util 7h
By Love Insured . . . . . Game 23h

C...

Cache XFCN . . . . . Util 8h
Calculator . . . . . Bus. 1h
Calculator . . . . . Util 3h
California 1.1 . . . . . Edu. 2h
Call Screening . . . . . Bus. 7h
Call Screening . . . . . Util 6h
CALotto 2.0 . . . . . Game 22h
Canfield . . . . . Util 17.2h
CaptainMidnight.decoder . . . . . Prog 3h
CardMover 1.1 . . . . . Util 10.1h
CarolStack . . . . . Gam 3h
Cartoons fx 1-2-3 . . . . . Snds 6h
Cartoon Sounds . . . . . Snds 14h
Cat Walking . . . . . Grph 1h
CD Catalog . . . . . Util 19h
Celestial-Wind-Carillons . . . . . Snds 8h
CFlash . . . . . Prog 1h
Chapter One . . . . . Game 23h
CheapSequencer . . . . . Util 14h
Check Register . . . . . Bus. 8h
Checking & Savings 2.3demo . . . . . Bus. 5h
CheckWriter . . . . . Bus. 3h
Chord/Scale/Note Conversion . . . . . Edu. 45h
Chriminal Law Quiz . . . Edu. 45h
Circuits . . . . . Edu. 2h
Clang . . . . . Prog 1h
Classical Icons Stack . . . Grph 2h
ClassRoom Ad . . . . . Edu. 6h
Clicky Buttons 1 & 2 . . . Util 18h
Client List . . . . . Bus. 8h
Client List 3 . . . . . Bus. 4h
Client™ Tutorial . . . . . Bus. 9h
Clip Art Viewer 1.5 . . . . Grph 1h
Clip Art Stack . . . . . Grph 12h
Clipboard . . . . . Prog 3h
Clock . . . . . Bus. 4h
Clock . . . . . Util 2h
Code for Kids . . . . . Gam 18h
Color . . . . . Util 7h
ColorIsOn XFCN . . . . . Prog 19h
Columnizer . . . . . Bus. 8h
Columnizer . . . . . Prog 3h
Combine Files . . . . . Prog 7h
Combo . . . . . Util 4h
Command History . . . . . Util 20h
Common Sounds . . . . . Snds 7h
Compacter . . . . . Util 18h
Concentration . . . . . Gam 4h
Concentration 3.0 . . . . Gam 18h
Conservation of Biology . . . . . Edu. 39h
Constitution of US . . . . Edu. 18h
CopyFile . . . . . Util 13h
CopyFile XFCN . . . . . Prog 3h
CPR Stack . . . . . Edu. 57h
Creaturs of Myth Stack . . . . . Grph 7h
Criminals . . . . . Gam 10h
Crunch XFCN . . . . . Util 8h

D...

D50 Lister . . . . . Edu. 43h
DACHS Text Import .01 . . . . . Bus. 10h
Dartmouth XCMDs Vol. 1 & 2 . . . . . Prog 5h
Dartmouth SCMDs 3 & 4 . . . . . Prog 19h
Datebook+, Home . . . . . Util 9h
Day at Racetrack . . . . . Gam 8h
db Importer . . . . . Bus. 10h
DB Importer . . . . . Bus. 3h
Dead Labels 2.5 . . . . . Bus. 4h
Death Mall 3000 . . . . . Gam 9h
DeleteFile SCMD . . . . . Prog 3h
Delux Address Stack . . . . Bus. 8h
DemoStack Editor . . . . . Prog 7h
Deprotect . . . . . Util 6h
DeskTop Music Video II . . . . . Grph 4h
Developer Stack 1.2 . . . Util 14h
Dialog Demo 2.1 . . . . . Prog 4h
Dialogs!!! . . . . . Prog 7h
Dialog's . . . . . Prog 19h
Dictionary of Geometry . . . . . Edu. 41h
Die Roller Demo . . . . . Gam 18h
Die Roller Demo . . . . . Gam 19h
Die Roller Demo . . . . . Prog 3h
Dinosaurs . . . . . Edu. 8h
discourse . . . . . Edu. 32h
Disk Box . . . . . Util 3h
Disk Labeler . . . . . Bus. 8h
Disk Manager . . . . . Util 7h
Disk Stack . . . . . Util 7h
Disk-It . . . . . Util 15h
DiskManager 1.03 . . . . . Util 13h
Disp-PICT14 . . . . . Prog 3h
DispPICT Stack . . . . . Grph 2h
Dot to Dot 1 . . . . . Game 22h
Doug's Address Stack . . Bus. 14h
DragonSword . . . . . Gam 1h
DragRect . . . . . Prog 3h
DragRect . . . . . Util 11h
DragTracer . . . . . Util 6h
DRiMporter 0.90 . . . . . Bus. 8h
DrTLetOne . . . . . Edu. 4h

E...

E-Mail . . . . . Bus. 8h
E-Mail . . . . . Bus. 9h
Ear . . . . . Edu. 1h
Earth Stack . . . . . Grph 6h
Effect XCMD . . . . . Util 14h
Electronic Call Screening . . . . . Demo 2h
Eliza 1.0 . . . . . Edu. 11h
Empire™ 1.2 . . . . . Gam 17h
Employee Selection . . . . Bus. 9h
Encrypt . . . . . Prog 3h
Entry Test . . . . . Edu. 31h
Entry Test . . . . . Edu. 44h
Esperanto Teacher . . . . Edu. 16h
ESPertise . . . . . Edu. 4h
Expense Vouchers . . . . . Bus. 6h

F...

Family Tree . . . . . Edu. 24h
FileName . . . . . Prog 3h
FileName . . . . . Util 2h
Files 1.1 . . . . . Prog 3h
Financial Math 161 . . . Bus. 13h
FindFile . . . . . Prog 7h
First Fleet 2.0 . . Edu. 29h(1-2-3)
FirstPath Componets . . . Prog 7h
Flash . . . . . Prog 1h
FlashCards . . . . . Edu. 3h
Flashcards/V1.2 . . . . . Edu. 2h
Flasher . . . . . Prog 3h
Flight Deck Mini Finder . Util 19h
Flute . . . . . Prog 1h
Font Stack . . . . . Grph 2h
Font Tester . . . . . Util 2h
FontList 1.0 . . . . . Util 14h
Foreground to Background v4.2 . . . . . Util 18h
Form 1040 . . . . . Bus. 4h
Fort Langley . . . . . Edu. 3h
Fortune Cookies . . . . . Gam 2h
Fractal . . . . . Grph 6h
Fractals . . . . . Edu. 3h
Fractals Stack . . . . . Grph 2h
Frames . . . . . Edu. 24h
Frog Stack . . . . . Edu. 55h
Full-Page Paint . . . . . Util 5h
FullText-empty . . . . . Util 5h
Funny Day . . . . . Grph 6h

G...

Game Sounds . . . . . Snds 11h
Genealogy DataBase . . Edu. 24h
Genealogy Explorer Demo . . . . . Demo 1h
Geological Stack . . . . . Edu. 31h
German Pict. Dictionary . . . . . Edu. 22h
Get DA Names . . . . . Util 8h
Get-DANam . . . . . Prog 3h
GetCreator . . . . . Prog 1h
GetDocs . . . . . Prog 1h
GetFonts . . . . . Prog 3h
GetString XFCN . . . . . Prog 18h
GetVolume/SetVolume . . . . . Util 12h
Good News Stack . . . . Edu. 42h
Gopher Tag . . . . . Gam 19h
Gradebook 10/17 . . . . Edu. 57h
Grades . . . . . Edu. 12h
Graphic Animal 1.0 . . . Edu. 40h

Graphic Animal 1.0 . . . Edu. 44h
GraphicWorks 1.1 . . . . Demo 1h
Gravity Stack . . . . . Edu. 55h
Groupies 2.4 . . . . . Util 16h
Growth Records . . . . . Edu. 15h
Guess The Number . . . . Edu. 2h
Guide to Mac Consultants . . . . . Bus. 8h
Guitar Chording 1.0d . Edu. 16h
Guitar Font ∂.mwt . . . . Edu. 16h
Guitarist 1.0 . . . . . Edu. 9h
Gunshy . . . . . Gam 2h

H...

Hamilton Diamond II © . . . . . Gam 17h
Hangman . . . . . Edu. 12h
Haz Mat . . . . . Gam 9h
HC AppleTalk . . . . . Util 8h
HC Handbook Errata . . . Util 14h
HCEnvirons Demo . . . . Util 1.5h
HCRistau Font . . . . . Grph 2h
Heather's Notes . . . . . Edu. 40h
Hex 2Decimal . . . . . Prog 7h
Hi There . . . . . Prog 1h
Hidden Scripts . . . . . Util 1.5h
HitachiVideo . . . . . Prog 1h
HolyHyper!, Hyper Exam . . . . . Edu. 42h
Home . . . . . Edu. 35h
Home Budget . . . . . Bus. 14h
Home Desk . . . . . Util 4h
Home Inventory . . . . . Bus. 8h
Home Security . . . . . Bus. 11h
Home#1 . . . . . Util 9h
HomesSuite 2.2 . . . . . Util 9h
Horror Trivia 1.0 . . . . Game 21h
House . . . . . Util 9h
HPop-Upz . . . . . Prog 3h
HPopUp Menu Stack . . . Prog 6h
HSS#2 . . . . . Util 16h
Hyper Alarms . . . . . Bus. 1h
Hyper Atlas™ . . . . . Demo 3h
Hyper Bingo . . . . . Gam 15h
Hyper Check . . . . . Bus. 1h
Hyper Handicap . . . . Game 22h
Hyper Icons 2.0 . . . . . Util 7h
Hyper Invaders . . . . . Gam 9h
Hyper Jotto 1.1 . . . . . Misc. 2h
Hyper Launch! . . . . . Util 1.5h
Hyper List . . . . . Util 7h
Hyper MIDI . . . . . Edu. 43h
Hyper MIDI v 1.11 . . . . . Prog 7h
Hyper Mutoscope . . . . . Grph 6h
Hyper Noise Demos 1 & 2 . . . . . Snds 4h
Hyper Standards . . . . . Util 7h
Hyper Talk Tutorial . . . . . Util 13h
Hyper Tel . . . . . Util 13h
Hyper Term . . . . . Prog 1h
Hyper UPS . . . . . Bus. 5h
Hyper Zeen! . . . . . Edu. 51h
Hyper-DeskTop 3.01 . . . Util 15h
Hyper-DEX . . . . . Bus. 9h
Hyper-Find 2.0 . . . . . Util 15h
Hyper-Hackers Queue 1.0 . . . . . Prog 4h
Hyper-News™ 1.1 . . . . . Util 4h
Hyper-QuicDEX Tfr . . . . . Bus. 9h
HyperAge MediaStack . . . . . Edu. 13h
Hyperbase . . . . . Bus. 8h
HyperBase 2.5 . . . . . Util 9h
HyperBib 2.1 . . . . . Edu. 6h
HyperCard Trick . . . . . Prog 6h
HyperCD/IRA . . . . . Bus. 12h
HyperChef™ Demo . . . Demo 3h
Hyperchem 1.1 . . . . . Edu. 39h
Hypercondriac . . . . . Util 2h
HyperCraps 1.02 . . . . . Gam 7h
Hyperdex . . . . . Bus. 1h
HyperEdit . . . . . Prog 3h
HyperFont . . . . . Util 3h
HyperFormula . . . . . Edu. 18h
HyperLabels 1.2 . . . . . Util 15h
HyperList 2.3 . . . . . Util 11h
HyperList 3.2 . . . . . Prog 3h
HyperLotto 2.0 . . . . . Game 26h
HyperMacInTalk . . . . . Util 18h
HyperMedfile . . . . . Edu. 21h
HyperMerge 2.02 . . . . . Util 15h
HyperMIDI 1.1 . . . . . Util 10h
HyperMonkey . . . . . Grph 10h
HyperMonkey . . . . . Util 15h
HyperMortgage . . . . . Bus. 9h
HyperPanic . . . . . Util 10h
HyperPayroll . . . . . Bus. 1h
HyperPlanes v1.0 . . . . Edu. 44h
HyperPS 1.2 . . . . . Util 5h
Hyperquackery 1.1 . . . . Snds 3h
HyperRap . . . . . Gam 10h
HyperReference Professional . . . . . Edu. 52h
HyperResearch 2.0 . . . Edu. 19h
HyperSleep . . . . . Util 3h
HyperSounds 2 . . . . . Snds 1h
HyperSource . . . . . Util 8h
HyperSpeak . . . . . Prog 1h
HyperStars . . . . . Grph 8h
HyperStation . . . . . Util 9h
HyperStrange Race . . . Gam 14h
HyperSword . . . . . Edu. 62h
HyperTalk Dictionary . . . Prog 4h
HyperTalk Helper . . . . . Prog 5h
HyperTalk Index . . . . . Prog 7h
HyperTalk Reference . . . Prog 4h
HyperTalk Reference . . . . Util 5h
HyperTest . . . . . Gam 4h
HyperTest . . . . . Gam 8h
HyperText Stacks . . . . . Util 11h
HyperTree 1.2 . . . . . Util 18h
HyperTunes 1.0/11kHz . . . . . Gam 3h
HyperWrite . . . . . Bus. 10h
HyperWrite1.1 . . . . . Util 3h
HyperX . . . . . Edu. 12h
HyperXCmd . . . . . Prog 1h
HyperZoo . . . . . Gam 10h

I...

I-Ching . . . . . Edu. 4h
Ice Cream . . . . . Gam 9h
Icon Anatomy . . . . . Util 7h
Icon Mover Fkey . . . . . Util 1.5h
Icon Stuff . . . . . Util 11h
Icon Tools Mac-Speedo.3 . . . . . Util 15h
ICONs in Menus . . . . . Util 7h
If Monks Had Macs (3-disk set) . . . . . Edu. 47h
Import Excel™ 1.0 . . . . . Bus. 4h
Import Excel™ 1.1 . . . . Bus. 10h
Import File™ 1.0 . . . . . Bus. 10h
Import Pict . . . . . Prog 3h
Import SYLK 1.0 . . . . . Bus. 9h
Import/Export . . . . . Bus. 10h
Importer . . . . . Bus. 10h
ImportPict . . . . . Util 1.5h
ImportText stack . . . . . Prog 3h
Income Recorder . . . . . Bus. 5h
Information Stack Keyboard #2 . . . . . Edu. 2h
Inheritance Path Stack . . . Util 4h
Inigo Gets Out . . . . . Gam 1h
Inigo Takes a Bath . . . . . Gam 5h
Inkey . . . . . Prog 3h
Insurance Record . . . . . Bus. 4h
Int'l Travel Assistance . . . Bus. 9h
Inventory Stack . . . . . Bus. 9h
Invoice HELPER® 2.1 . . . Bus. 13h
Italian Survival Guide . . . Edu. 37h
Itsy Bitsy Spider . . . . . Edu. 50h

J...

Jabberwock . . . . . Edu. 21h
Jack & the Beanstalk . . . Gam 10h
Japan A to E . . . . . Edu. 46h
Japanese Drills . . . . . Edu. 20h
Job Search 1.3 . . . . . Bus. 12h
Just for Fun1 . . . . . Gam 4h

K...

K'KaiAdventure . . . . . Gam 16h
Kard Keeper II . . . . . Prog 7h
Kid Stacks . . . . . Edu. 40h
KidHome . . . . . Edu. 40h
Kids Can Save the Earth (6-disks) . . . . . Edu. 60h
Kinight Adventure . . . . . Gam 4h
Kites! . . . . . Edu. 33h
KiwiEnvelopes!™ . . . . . Bus. 7h
Kung-Fu 3 . . . . . Game 25h

L...

Laura's Letters . . . . . Gam 1h
Learn Japanese . . . . . Edu. 20h
Learn Kana . . . . . Edu. 20h
Leasing Machine . . Bus. 13h
Let's Do Math . . . . . Edu. 61h
LetterWriter . . . . . Bus. 9h
Lexical Enigineer-Kanji . . . . . Edu. 20h
Libby's letters . . . . . Edu. 45h
Libby's letters . . . . . Gam 19h
Library Demo Stacks . . Edu. 28h
Library Management . . Edu. 11h
Lifting Guide 1.6 . . . . . Edu. 2h
Line Stripper XFCN . . . Prog 19h
Lock/Unlock . . . . . Util 10h
Looking for a Telephone . . . . . Gam 7h
Loose Notes . . . . . Util 1.5h
Lost in Space!! . . . . . Util 2h
LottoBlaster . . . . . Gam 8h
Lunar Lander . . . . . Game 26h

M...

Mac AdLib . . . . . Util 2h
Mac Tips . . . . . Util 4h
Mac Tips . . . . . Util 6h
Mac TV . . . . . Misc. 1h
Mac-Speedo 1.2 . . . . . Util 18h
MacDesk Presentations . . . . . Grph 10h
MacInTalk . . . . . Prog 1h
MacSlots . . . . . Gam 7h
Macsody in Blue . . . . . Grph 5h
MacSpeedo 1.3 ßeta . . . Prog 7h
MacTALK 32 . . . . . Util 2h
MacTV II . . . . . Misc 4h
MacUser Index . . . . . Bus. 3h
MacVendors . . . . . Bus. 1h
MacVermont #2 . . . . . Grph 2h
MacWEEKstack . . . . . Edu. 13h
MacWorld Index 1 & 2 . . Util 5h
MacWorld Index 1987 . . . Util 6h
Mad Libs!!! . . . . . Gam 12h
Mad Math Minute 2.0 . Edu. 12h
Mae West 1 & 2 . . . . . Snds 12h
Maestro . . . . . Edu. 19h
MagicLottery . . . . . Gam 16h
Mail Mgr . . . . . Bus. 13h
Mailing List Maker . . . . . Bus. 6h
Maitre d' . . . . . Bus. 9h
Make Letter Button . . . . Util 11h
Management Storage . Bus. 11h
Mandelbrot Fractal . . . Grph 12h
Marc's Hypertools . . . . . Prog 7h
Markets . . . . . Bus. 11h
Mass Compacter . . . . . Util 11h
Mass Compacter . . . . . Util 12h
Mastermind . . . . . Game 25h
MasterStock Stack . . . . . Bus. 12h
Math Adventure . . . . . Edu. 3h
Math Adventure . . . . . Edu. 53h
Math Animator . . . . . Edu. 23h
MAXAPPLZONE . . . . . Prog 7h
Mayan Icons . . . . . Edu. 12h
Maze 1.0A7 . . . . . Util 2h
Maze Maker . . . . . Gam 10h

Maze Maker . . . . . Gam 12h
Mcsounds 3 . . . . . Snds 13h
Melodic Dictator . . . Edu. 19h
MemoNoteStack . . . . . Bus. 6h
MemoNoteStack 4.0 . . . . Bus. 7h
Memory Match . . . . . Gam 4h
Memory Phone . . . . . Bus. 4h
MemoryMaster™ . . . . . Gam 12h
Memos . . . . . Bus. 3h
Memos . . . . . Bus. 9h
Menu Manager . . . . . Util 8h
MenuManager . . . . . Prog 3h
Menus For HyperCard . . . Util 4h
Mesopotamina 0.9 . . . . Edu. 8h
Metronome . . . . . Edu. 42h
Metronome . . . . . Edu. 43h
Meyers-Briggs Personality Test . . . . . Edu. 24h
MH Power Scripts 1.3 . . Prog 4h
Michelle's Map . . . . . Edu. 40h
MiniFinder Stack . . . . . Util 1.5h
Miri's Map . . . . . Util 2h
Misc DataIndex . . . . . Util 7h
Mr. Moo's Math . . . . . Edu. 53h
MixNMatch . . . . . Gam 12h
Modern Art . . . . . Grph 10h
Mogens Book System . Edu. 44h
Money . . . . . Edu. 40h
Monster Hunt . . . . . Gam 6h
Month . . . . . Bus. 4h
Month At a Glance . . . . Bus. 3h
Monty Stack 6 . . . . . Snds 12h
More Kid Stacks . . . . . Edu. 45h
More Scanned Images . Grph 1h
Mr. PotatoHead . . . . . Gam 4h
MS Address Merge . . . . Bus. 3h
Mud Pie Machine . . . . . Util 12h
MunchingMoose . . . . . Util 3h
Musical Mac . . . . . Gam 8h

N...

NetWare for Mac . . . . Edu. 38h
neuron . . . . . Edu. 43h
Neurotour . . . . . Edu. 1h
New Testament Stack© Edu. 10h
New Testament . . . . . Edu. 49h
NewFolder . . . . . Util 10h
News Stack . . . . . Util 4h
Nifty Scripts . . . . . Prog 6h
Nifty Scripts . . . . . Prog 18h
No Misconception Demo . . . . . Edu. 48h
NoteBook . . . . . Util 1.5h
Notepad II 2.1 . . . . . Prog 3h
Notes on Notes . . . . . Util 15h
Nutrition . . . . . Edu. 39h
Nutrition v1.1 . . . . . Edu. 15h

O...

Old Testament Stack . . Edu. 17h
Oooooooo . . . . . Gam 3h
Opcode Demo 2.0 . . . Edu. 35h
Open Stack . . . . . Edu. 27h
openPort . . . . . Prog 1h
Orderform . . . . . Bus. 1h
Organnel Charts™ . . . . . Bus. 6h
overWeight? . . . . . Edu. 15h
overWeight? . . . . . Edu. 21h

P...

Pacilt III (V1.3) . . . . . Misc. 1h
Paint-View . . . . . Prog 3h
Palette XFCN . . . . . Prog 6h
Panasonic TQ2024F . . . Prog 1h
Paradise Music . . . . . Edu. 58h
Parsifal . . . . . Edu. 32h
Passing Notes . . . . . Edu. 14h
Passing Notes (final) . . Edu. 42h
Pasta Italiano . . . . . Edu. 25h
pCalc V0.7 . . . . . Util 5h
Peek . . . . . Prog 1h
Periodic Table . . . . . Edu. 12h
Personal Financer . . . . . Bus. 1h
Phone . . . . . Util 16h
Phone Book . . . . . Bus. 6h
Phone Book, v. 2.8 . . . Bus. 14h
Phone Messages . . . . . Bus. 9h
Phone Stack Script . . . . . Prog 2h
Phone w/Deamon Dialer . . . . . Bus. 10h
Physics Teacher's Test . . . . . Edu. 45h
PictToClip XFCN . . . . . Prog 19h
Pioneer LDV6000/LVP4200 . . . . . Prog 1h
PioneerFNum . . . . . Prog 1h
Plant Encyclopedia™ . . Edu. 21h
Plant Kingdom . . . . . Edu. 3h
Poison .09 . . . . . Edu. 21h
Politica . . . . . Edu. 43h
Pop Up Menu . . . . . Prog 2h
PopAlert . . . . . Util 3h
PopStack . . . . . Prog 3h
PopUpMenus . . . . . Util 13h
portHasChar . . . . . Prog 1h
Post-Event XCMD . . . . . Prog 3h
PostNote . . . . . Bus. 1h
Power Tools . . . . . Util 10h
Print ClipBoard Demo . . Prog 3h
Print-Field . . . . . Prog 3h
Programmer's Notebook . . . . . Util 10h
Progress XCMD . . . . . Prog 7h
Proportion Wheel 2.0 . . Grph 1h

Q...

QuickDex Import/Export Bus. 12h
QuickDraw XCMD Stack Prog 5h
Quik Reference . . . . . Bus. 1h

R...

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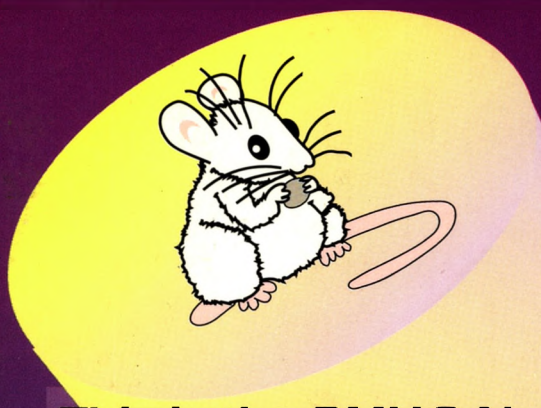

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This is the BMUG Newsletter, the premier publication for the informed Macintosh user. BMUG is a Berkeley, California based, non-profit computer user group.

We try to cover all aspects of using a graphical interface computer. The articles herein are written by our members. We accept no advertising, making this a uniquely independent publication. Sections include:

- BMUG Resources
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This newsletter is sent to all current BMUG members, you can't buy one by itself. A six-month BMUG membership is included in the cover price. Additional membership benefits include:

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